

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.06.98  
Test oil : ISO 4113

Combination No. : 0 402 646 681

Injection pump  
Pump designation : PE6P120A32ORS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1381K  
Governor no. : 0 421 815 561

Cust. part No. : 1349846/0

Customer-spec. information  
Customer : DAF  
Motor : XF 250  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

A01

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

Rack travel in mm : 11.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.70

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.35  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0

Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000S.	: ± 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 3.70
Tolerance mm	: ± 0.10
Del. quantity	
cm3/1000 strokes	: 13.5
Tolerance	
cm3/1000 strokes	: ± 3.0
Check tolerance	
cm3/1000S.	: ± 6.0
Spread	
Tolerance	
cm3/1000 strokes	: 8.0
Check tolerance	
cm3/1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1055
guide sleeve	
travel mm	: 7.47
Tolerance mm	: ± 0.15
Rated speed rpm	: 275
guide sleeve	
travel mm	: 2.04
Tolerance mm	: ± 0.20
Rated speed rpm	: 820
guide sleeve	
travel mm	: 5.14
Tolerance mm	: ± 0.25
Rated speed rpm	: 480
guide sleeve	
travel mm	: 3.34
Tolerance mm	: ± 0.25

Rated speed rpm	: 1282
guide sleeve	
travel mm	: 12.00
Tolerance mm	: ± 0.25
Rated speed rpm	: 1370
guide sleeve	
travel mm	: 13.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm	: 1263
Rack travel in mm	: 10.50
Tolerance mm	: ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 980
Aneroid pressure	
hPa	: 1500
Del. quantity	
cm3/1000 strokes	: 245.0
Tolerance	
cm3/1000 strokes	: ± 1.0
Check tolerance	
cm3/1000S.	: ± 4.0
Spread	
Tolerance	
cm3/1000 strokes	: 5.0
Check tolerance	
cm3/1000S.	: 9.0

##### CONTROL LEVER

control lever	
position degree	: 110.0
tolerance degree	: ± 4.0
RATED SPEED	
rack travel mm	: 10.50
Rated speed rpm	: 1045
Tolerance 1/min	: ± 5
Check	
speed 1/min	: ± 10
rack travel mm	: 4.00
Rated speed rpm	: 1130
Tolerance 1/min	: ± 15
Check	
speed 1/min	: ± 20
rack travel mm	: 0.70
Tolerance mm	: ± 0.70
Rated speed rpm	: 1275



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#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  6.80

Testing:

Rated speed rpm : 275  
rack travel mm : 3.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

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#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500

A03

rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 775  
Pressure hPa : 460  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Rated speed rpm : 775

Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 250  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

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Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

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LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 3.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.06.98  
Test oil : ISO 4113

Combination No. : 0 402 648 708

Injection pump  
Pump designation : PE8P120A320LS7927  
EP type number : 0 412 628 934

Governor  
Governor design. : RQ300/1050PA1389  
Governor no. : 0 421 801 836

Cust. part No. :

Customer-spec. information  
Customer : DHI  
Motor : DV15TIS Euro II  
Power KW : 310.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.85  
Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 258.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000s.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance cm <sup>3</sup> /1000s.	: 10.0

Rated speed rpm	: 300
Rack travel in mm	: 6.00
Tolerance mm	: ± 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 18.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 3.0
Check tolerance cm <sup>3</sup> /1000s.	: ± 6.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000s.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1108
guide sleeve travel mm	: 6.36
Tolerance mm	: ± 0.15
Rated speed rpm	: 300
guide sleeve travel mm	: 1.31
Tolerance mm	: ± 0.20
Rated speed rpm	: 1050
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10
Rated speed rpm	: 441

guide sleeve travel mm	: 3.98
Tolerance mm	: ± 0.10

Rated speed rpm	: 560
guide sleeve travel mm	: 6.00
Tolerance mm	: ± 0.10

Rated speed rpm	: 1290
guide sleeve travel mm	: 11.50
Tolerance mm	: ± 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: 106
Rated speed rpm	: 800

Rack travel in mm	: 19.40
Tolerance mm	: ± 0.60

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
Aneroid pressure hPa	: 1800
Del. quantity cm <sup>3</sup> /1000 strokes	: 258.0
Tolerance cm <sup>3</sup> /1000 strokes	: ± 1.0
Check tolerance cm <sup>3</sup> /1000s.	: ± 4.0
Spreed	
Tolerance cm <sup>3</sup> /1000 strokes	: 7.0
Check tolerance cm <sup>3</sup> /1000s.	: 10.0

##### CONTROL LEVER

control lever position degree	: 34.0
tolerance degree	: ± 4.0

control lever position degree	: 96.0
tolerance degree	: ± 4.0

RATED SPEED rack travel mm	: 12.60
Rated speed rpm	: 1102
Tolerance 1/min	: ± 8

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

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#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 10.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  7.50

#### Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 430  
Tolerance 1/min :  $\pm$  30

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#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.10

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#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500

A07

Pressure hPa : 1800  
rack travel mm : 13.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

#### 2-stage LDA setting

Rated speed rpm : 500  
Pressure hPa : 800  
rack travel mm : 12.65

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 300  
rack travel mm : 9.60  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1400  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1200  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

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#### Start interlock

Rated speed rpm :  $>$  205  
Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  185  
Check  
speed 1/min :  $<$  260

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 264.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

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Aneroid pressure  
hPa : 800  
Rated speed rpm : 500  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 229.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

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Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 233.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

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#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.98  
Test oil : ISO 4113

Combination No. : 0 402 648 785

Injection pump  
Pump designation : PE8P120A320LS7844  
EP type number : 0 412 628 860

Governor  
Governor design. : RQV350...1050PA1318  
Governor no. : 0 421 814 185

Cust. part No. : 0270746302

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 LA  
Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 130  
Tolerance L/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

A09

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 15.30  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 272.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Spreed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 19.0

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  6.0

Spreed

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1106  
guide sleeve

travel mm : 8.02  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve

travel mm : 1.48  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 900  
guide sleeve

travel mm : 5.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 580

guide sleeve  
travel mm : 3.62  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1204  
guide sleeve

travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1300  
guide sleeve

travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1174

Rack travel in mm : 11.00  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure

hPa : 1800

Del. quantity  
cm3/1000 strokes : 272.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Spreed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 14.30

Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1190

Tolerance 1/min :  $\pm$  15



rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

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#### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  7.00

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450

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#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.10

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#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

##### CRT ZERO POSITION

Rack travel in mm : 8.40  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500  
Pressure hPa : -

##### MEASUREMENT

Pressure hPa : 700  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 180

rack travel mm : 0.40  
Tolerance mm :  $\pm$  0.05

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#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

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#### FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 1800  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 274.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

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Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 140.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### REDUCED QUANTITY

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 1050  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

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#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

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#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.98

Test oil : ISO 4113

Combination No. : 0 402 648 967

## Injection pump

Pump designation : PE8P12CA320LS7871

EP type number : 0 412 628 877

## Governor

Governer design. : RQV300...1050PA1078

: -1K

Governer no. : 0 421 815 361

Cust. part No. : 9275447

## Customer-spec. information

Customer : LIEBHERR

Motor : D 9408 TI

Power Kw : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 190

Tolerance l/h : ± 20.0

## Test nozzle holder assembly

: 1 688 901 105

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

A13

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6

: - 3- 5- 4

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 300.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.90  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.75  
Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

## LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. : > 6.80

## Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 950  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 550  
Pressure hPa : 1600  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550

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Pressure hPa : -  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 630  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 575  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.15

---

## Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 290

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 300

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.10

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.15  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 20.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 4.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 18.06.98  
Test oil : ISO 4113  
Combination No. : 0 402 648 967A  
Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877  
Governor  
Governor design. : RQV300...1050PA1078  
                  : -1K  
Governor no. : 0 421 815 361  
Cust. part No. : 9275448

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 1 417 413 047  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 190  
Tolerance l/h : ± 20.0  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

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Test lines : 1 680 750 075  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.50  
Tolerance mm : ± 0.50  
Firing order : 1- 8- 7- 2- 6  
                  : - 3- 5- 4  
Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050  
Rack travel in mm : 12.75  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 4.90

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm : + 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : + 0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm : + 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm : + 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm : + 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66  
Tolerance mm : + 0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm : + 2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.75  
Rated speed rpm : 1110  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1205  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300



---

## LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.80

### Testing:

Rated speed rpm : 350  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 950  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 550  
Pressure hPa : 1600  
rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550

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Pressure hPa : -  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 630  
rack travel mm : 10.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 575  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.15

---

### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  290

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  300

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 10.45  
Tolerance mm :  $\pm$  0.10

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550

Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.15  
Tolerance mm : ± 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 200.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 20.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.90  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 24.06.98  
Test oil : ISO 4113

Combination No. : 0 402 744 809

Injection pump  
Pump designation : PES4P120A32ORS7312  
: -1  
EP type number : 0 412 724 803

Governor  
Governor design. : RQV400...1200PA1397  
Governor no. : 0 421 814 212

Cust. part No. : 51.11103-7579

## Customer-spec. information

Customer : MAN  
Motor : D 0824 LOH 05  
Power Kw : 114.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 120  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 400

Rack travel in mm : 4.80  
Tolerance mm : +- 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1261  
guide sleeve  
travel mm : 10.26  
Tolerance mm : +- 0.15

Rated speed rpm : 400  
guide sleeve  
travel mm : 2.21  
Tolerance mm : +- 0.20

Rated speed rpm : 822  
guide sleeve  
travel mm : 5.79  
Tolerance mm : +- 0.25

Rated speed rpm : 500  
guide sleeve  
travel mm : 3.53  
Tolerance mm : +- 0.25

Rated speed rpm : 1490

guide sleeve  
travel mm : 13.50  
Tolerance mm : +- 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 1322

Rack travel in mm : 11.80  
Tolerance mm : +- 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 302.0  
tolerance degree : +- 4.0

RATED SPEED  
rack travel mm : 11.80  
Rated speed rpm : 1250  
Tolerance 1/min : +- 8

rack travel mm : 4.00  
Rated speed rpm : 1345  
Tolerance 1/min : +- 15

rack travel mm : 0.50  
Tolerance mm : +- 0.50  
Rated speed rpm : 1400

##### LOW IDLE

control lever  
position degree : 262.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
CRT mm min. :  $>$  7.00

Testing:

Rated speed rpm : 400  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10  
  
rack travel mm : 2.00  
Rated speed rpm : 494  
Tolerance 1/min :  $\pm$  20

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1200  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 140  
rack travel mm : 8.90  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 450  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.15

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 217.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 19.06.98

Test oil : ISO 4113

Combination No. : 0 402 746 609

## Injection pump

Pump designation : PES6P130A720RS7411

EP type number : 0 412 736 808

## Governor

Governor design. : RQ275/950PA1274

Governor no. : 0 421 801 807

Cust. part No. : 643 739

## Customer-spec. information

Customer : RABA

Motor : SIEHE BEMERKUNG

Power KW : 190.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 160

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.50

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 11.90

Tolerance mm : ± 0.05

Del. quantity cm <sup>3</sup> /1000 strokes	: 224.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

Rated speed rpm	: 275
Rack travel in mm	: 4.20
Tolerance mm	: + 0.10
Del. quantity cm <sup>3</sup> /1000 strokes	: 24.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 3.0
Check tolerance cm <sup>3</sup> /1000S.	: + 6.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 8.0
Check tolerance cm <sup>3</sup> /1000S.	: 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm	: 1007
guide sleeve travel mm	: 6.56
Tolerance mm	: + 0.15
Rated speed rpm	: 275
guide sleeve travel mm	: 2.06
Tolerance mm	: + 0.20
Rated speed rpm	: 950
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10
Rated speed rpm	: 361

guide sleeve travel mm	: 4.45
Tolerance mm	: + 0.10

Rated speed rpm	: 450
guide sleeve travel mm	: 6.00
Tolerance mm	: + 0.10

Rated speed rpm	: 1200
guide sleeve travel mm	: 11.50
Tolerance mm	: + 0.50

##### GUIDE SLEEVE POSITION

control lever position degree	: 109
Rated speed rpm	: 900

Rack travel in mm	: 20.00
Tolerance mm	: + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 600
Aneroid pressure hPa	: 1500
Del. quantity cm <sup>3</sup> /1000 strokes	: 224.0
Tolerance cm <sup>3</sup> /1000 strokes	: + 1.0
Check tolerance cm <sup>3</sup> /1000S.	: + 4.0
Spread	
Tolerance cm <sup>3</sup> /1000 strokes	: 5.0
Check tolerance cm <sup>3</sup> /1000S.	: 9.0

##### CONTROL LEVER

control lever position degree	: 33.0
tolerance degree	: + 4.0

control lever position degree	: 95.0
tolerance degree	: + 4.0

RATED SPEED	
rack travel mm	: 10.90
Rated speed rpm	: 995
Tolerance 1/min	: + 5



rack travel mm : 4.00  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  6.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 335  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 260  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 440  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  175  
Rated speed rpm :  $<$  200

Check  
speed 1/min :  $>$  155  
Check  
speed 1/min :  $<$  220

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 219.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 110.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 4.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.06.98  
Test oil : ISO 4113

Combination No. : 0 402 846 302

Injection pump  
Pump designation : PE6P120A32ORS8520  
EP type number : 0 412 826 202

Governor  
Governor design. : RQV275...1000PA1269K  
Governor no. : 0 421 815 969

Cust. part No. : 1310222/2

Customer-spec. information  
Customer : DAF  
Motor : XF 355 M  
Power KW : 355.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.05  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Rated speed rpm : 275

Rack travel in mm : 4.20

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1058

guide sleeve  
travel mm : 9.97

Tolerance mm : ± 0.15

Rated speed rpm : 275

guide sleeve  
travel mm : 2.04

Tolerance mm : ± 0.20

Rated speed rpm : 399

guide sleeve  
travel mm : 3.65

Tolerance mm : ± 0.25

Rated speed rpm : 1260

guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1121

Rack travel in mm : 13.30

Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.05

Rated speed rpm : 1045

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1140

Tolerance 1/min : ± 15

Check  
speed 1/min : ± 20

rack travel mm : 0.70

Tolerance mm : ± 0.70

Rated speed rpm : 1275

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  6.70

Testing:

Rated speed rpm : 275  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.45  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
Pressure hPa : -  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 980  
  
Pressure hPa : 750  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 380  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 361.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 199.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 4.20

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 14.05.98  
Test oil : ISO 4113  
Combination No. : 0 403 476 146  
Injection pump  
Pump designation : PES6MW100/32ORS1245  
EP type number : 0 413 406 247  
Governor  
Governor design. : RSV300...1100MWOA400  
Governor no. : 0 420 085 293

Cust. part No. : 11032700 P02 v.02.98

Customer-spec. information  
Customer : VCE  
Motor : TD 63KDE  
Power KW : 90.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 046  
Inlet press. bar : 1.5  
Tolerance l/h : ± 20.0  
Test nozzle holde  
assembly : 0 688 901 101  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
Test lines : 1 680 750 014

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 31.0  
Tolerance bar : ± 1.0  
Prestroke mm : 3.05  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 10.90  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100  
Rack travel in mm : 12.40  
Tolerance mm : ± 0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.0

---

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm3/1000S. :  $\pm$  3.0

---

Spread

Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 6.0

---

Rated speed rpm : 315

Rack travel in mm : 5.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 17.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spread

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm :  $\pm$  0.35

governor spring  
pre-tension  
click setting x : 5.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm3/1000 strokes : 106.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spread

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

---

#### CONTROL LEVER

control lever  
position degree : 81.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.30

Rated speed rpm : 1140

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1260

Tolerance 1/min :  $\pm$  15

rack travel mm : 1.00

Tolerance mm :  $\pm$  0.70

Rated speed rpm : 1420

rack travel mm : 4.00

Rated speed rpm : 1270

Tolerance 1/min :  $\pm$  15

---

#### LOW IDLE

control lever  
position degree : 106.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 315

rack travel mm : 5.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 315



rack travel mm : 5.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 12.40  
Tolerance mm : ± 0.05

Rated speed rpm : 500  
rack travel mm : 13.50  
Tolerance mm : ± 0.10

Rated speed rpm : 900  
rack travel mm : 12.70  
Tolerance mm : ± 0.20

Rated speed rpm : 740  
rack travel mm : 13.20  
Tolerance mm : ± 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.50  
Tolerance mm : ± 0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm : ± 0.10

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 620  
rack travel mm : 2.20  
Tolerance mm : ± 0.20

Pressure hPa : 120  
rack travel mm : 0.25  
Tolerance mm : ± 0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.5  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

rack travel mm : 12.70  
Tolerance mm : ± 0.20

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 73.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.00  
Tolerance mm : ± 1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

#### LOW IDLE

Rated speed rpm : 315  
Rack travel in mm : 5.50  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5  
Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.98  
Test oil : ISO 4113

Combination No. : 0 400 463 115

Injection pump  
Pump designation : PES3A80D320/3RS1299  
EP type number : 0 410 483 015

Governor  
Governor design. : RSV325...1500A2C505R  
Governor no. : 0 420 233 187

Cust. part No. :

Customer-spec. information  
Customer : MWM  
Motor : D226-3

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

B09

x Length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 2- 3

Phasing : 0-120-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1480

Rack travel in mm : 9.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

## Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

Rated speed rpm : 325

Rack travel in mm : 7.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1480  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 48.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 0.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : 4.0

---

#### CONTROL LEVER

control lever  
position degree : 108.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 8.00  
Rated speed rpm : 1525

Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1560

Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1720

rack travel mm : 4.00  
Rated speed rpm : 1570

Tolerance 1/min : ± 15

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 7.00

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 7.50

Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 485

Tolerance 1/min : ± 30

---

#### TORQUE CONTROL

Rated speed rpm : 1480  
rack travel mm : 9.00

Tolerance mm : ± 0.05

---

Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 20.25

Tolerance mm :  $\pm$  0.75

Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 7.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed  
Tolerance

cm<sup>3</sup>/1000 strokes : 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : 3.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.06.98  
Test oil : ISO 4113

Combination No. : 0 400 866 227

Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884

Governor  
Governor design. : RSV325...1250A5C870L  
Governor no. : 0 420 232 625

Cust. part No. : 0423 1964 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : BF6L 913  
Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 82.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0



Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 500  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 250  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 9.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.06.98

Test oil : ISO 4113

Combination No. : 0 400 866 229

## Injection pump

Pump designation : PES6A95D410/3RS2907

EP type number : 0 410 896 884

## Governor

Governer design. : RSV325...1250A5C873L

Governer no. : 0 420 232 628

Cust. part No. : 0423 2077 KY

## Customer spec. information

Customer : KHD-DMI

Motor : BF6L 913

Power KW : 118.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly

: 0 681 343 009

Opening pressure  
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 13.00

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 82.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 9.60

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 14.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 4.5

## Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever

position degree : FREE

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring

pre-tension

click setting x : 3.25

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 82.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

## Speed

## Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

### CONTROL LEVER

control lever

position degree : 103.0

tolerance degree : ± 4.0

### RATED SPEED

rack travel mm : 12.00

Rated speed rpm : 1295

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1355

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1565

rack travel mm : 4.00

Rated speed rpm : 1415

Tolerance 1/min : ± 15

### LOW IDLE

control lever

position degree : 70.0

tolerance degree : ± 4.0

### Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 9.10

Tolerance mm : ± 0.10

### Testing:

Rated speed rpm : 325

rack travel mm : 9.60

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 600

Tolerance 1/min : ± 30

### TORQUE CONTROL

Rated speed rpm : 1250

rack travel mm : 13.00

Tolerance mm :  $\pm$  0.05  
Rated speed rpm : 500  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 13.50  
Tolerance mm :  $\pm$  0.10

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 250  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 750  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 69.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  1.00  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 120.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 9.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.06.98  
Test oil : ISO 4113

Combination No. : 0 402 076 823

Injection pump  
Pump designation : PES6P120A72ORS3352  
EP type number : 0 412 026 780

Governor  
Governor design. : RSV400...1100P2A599  
: -10  
Governor no. : 0 421 833 620

Cust. part No. : RE502438

Customer-spec. information  
Customer : DEERE  
Motor : 6081AF001  
Power KW : 149.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.60  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

## Start of delivery blocking

°NW after s.o.d. : 6.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

and maximum rack  
travel : 14.00  
Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.55  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 900  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.50  
Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 575  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 360  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.05

Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 29.06.98

Test oil : ISO 4113

Combination No. : 0 402 076 824

Injection pump

Pump designation : PES6P120A720RS3352

EP type number : 0 412 026 780

Governor

Governer design. : RSV400...1100P2A599

: -11

Governer no. : 0 421 833 621

Cust. part No. : RE502439

## Customer-spec. information

Customer : DEERE

Motor : 6081AF001

Power KW : 149.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 457 413 010

Inlet press. bar : 2.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

## Start of delivery blocking

°NW after s.o.d. : 6.50

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

and maximum rack

travel : 14.00

Difference ° CS : 2.50

## BASIC SETTING

Rated speed rpm : 1100



Rack travel in mm : 11.55  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

Rated speed rpm : 400

Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 4.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure  
hPa : 900

Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.5

#### CONTROL LEVER

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.50

Rated speed rpm : 1160  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1350

rack travel mm : 4.00

Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400

rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. : > 19.00

Testing:

Rated speed rpm : 400  
rack travel mm : 5.70  
Tolerance mm :  $\pm$  0.10

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.10

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 900

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 575  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 360  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.05

---

Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 900  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  25.0

---

LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 5.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.98  
Test oil : ISO 4113

Combination No. : 0 402 046 791

Injection pump  
Pump designation : PES6P120A32ORS3139  
EP type number : 0 412 026 718

Governor  
Governor design. : RQV275...950PA728-4  
Governor no. : 0 421 813 678

Cust. part No. :

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 063540 H  
Power KW : 264.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : 9.00  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.50

Barrel no. : 1

## Beginning of delivery difference

and maximum rack  
travel : 10.50  
Tolerance mm : ± 0.50

## CRT ZERO POSITION

Rack travel in mm : 13.35  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 213.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -7.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 950  
guide sleeve  
travel mm : 6.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275  
guide sleeve  
travel mm : 1.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
guide sleeve  
travel mm : 5.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.50  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1500  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1125

Rack travel in mm : 16.50  
Tolerance mm :  $\pm$  1.30

---

#### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1020  
Tolerance 1/min :  $\pm$  5

rack travel mm : -9.30  
Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  15

rack travel mm : -12.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
 CRT mm min. : < -5.70  
 Testing:  
 Rated speed rpm : 275  
 rack travel mm : -7.50  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 350

---

TORQUE CONTROL  
 Rated speed rpm : 600  
 Rated speed rpm : 950  
 Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1000  
 Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : -4.00  
 Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
 Pressure hPa : 660  
 rack travel mm : -1.00  
 Tolerance mm :  $\pm$  0.10  
 Pressure hPa : 200  
 rack travel mm : -3.35  
 Tolerance mm :  $\pm$  0.05

---

##### Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : < 195  
 Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 215

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 950  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 213.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 119.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

---



---

#### STARTING FUEL DELIVERY

Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 165.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  19.0

---



---

#### LOW IDLE

Rated speed rpm : 275  
 Rack travel in mm : -7.50  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 26.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.98  
Test oil : ISO 4113

Combination No. : 0 402 046 882

Injection pump  
Pump designation : PES6P110A32ORS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQV325...1250PA1385  
Governor no. : 0 421 814 209

Cust. part No. : 1351707

## Customer-spec. information

Customer : DAF  
Motor : NS177M-CBP  
Power KW : 177.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 12.80  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2  
                  : - 4

Phasing : 0- 60- 120- 180  
          : - 240- 300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.70

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.70

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1303  
guide sleeve  
travel mm : 10.33  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.25  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 865  
guide sleeve  
travel mm : 5.43  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 3.02  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1510  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1360

Rack travel in mm : 11.80  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 154.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 123.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.80  
Rated speed rpm : 1290  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1375  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20



rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 77.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. :  $>$  6.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 7.10  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 600  
Pressure hPa : 210  
rack travel mm : 8.60  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 410  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 93.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.06.98  
Test oil : ISO 4113

Combination No. : 0 402 074 700

Injection pump  
Pump designation : PES4P110B720RS3383  
EP type number : 0 412 014 701

Governor  
Governor design. : RSV300...1100P1A667  
Governor no. : 0 421 833 582

Cust. part No. : 9882855

Customer spec. information  
Customer : LIEBHERR  
Motor : D 924 TI-E A2  
Power KW : 137.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 207.0  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 4

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 12.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

Rated speed rpm : 400

Rack travel in mm : 4.35  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.5

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980

Aneroid pressure  
hPa : 1220

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.5

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

##### CONTROL LEVER

control lever  
position degree : 105.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 4.00  
Rated speed rpm : 1080  
Tolerance 1/min : ± 15

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1028  
rack travel mm : 11.10

Rated speed rpm : 1083  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

Rated speed rpm : 1029  
rack travel mm : 11.10

Rated speed rpm : 1084  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

Rated speed rpm : 1030  
rack travel mm : 11.10

Rated speed rpm : 1085  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

Rated speed rpm : 1031  
rack travel mm : 11.10

Rated speed rpm : 1086  
Tolerance 1/min : ± 4  
rack travel mm : 4.00

Rated speed rpm : 1032  
rack travel mm : 11.10

Rated speed rpm : 1087  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

Rated speed rpm : 1033  
rack travel mm : 11.10

Rated speed rpm : 1088  
Tolerance 1/min :  $\pm 4$   
rack travel mm : 4.00

---

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm 4.0$

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.85  
Tolerance mm :  $\pm 0.10$

#### Testing:

Rated speed rpm : 400  
rack travel mm : 4.35  
Tolerance mm :  $\pm 0.10$

rack travel mm : 2.00  
Rated speed rpm : 495  
Tolerance 1/min :  $\pm 50$

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 12.10  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 500  
rack travel mm : 12.10  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 700  
rack travel mm : 12.10  
Tolerance mm :  $\pm 0.10$

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1220  
rack travel mm : 12.10  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm :  $\pm 0.10$

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 730  
rack travel mm : 11.80  
Tolerance mm :  $\pm 0.05$

Pressure hPa : 670  
rack travel mm : 11.30  
Tolerance mm :  $\pm 0.10$

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1220  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

---

##### Aneroid pressure

hPa : 1220  
Rated speed rpm : 700  
rack travel mm : 12.10  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 6.0$

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 4.35  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.98  
Test oil : ISO 4113

Combination No. : 0 402 074 700C

Injection pump  
Pump designation : PES4P110B720RS3383  
EP type number : 0 412 014 701

Governor  
Governor design. : RSV300...1100P1A667  
Governor no. : 0 421 833 582

Cust. part No. : 9882855

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 924 TI-E A2  
Power KW : 137.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 049

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 207.0  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

C09

Outside diameter : 6.0  
x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.20  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 12.10  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance cm3/1000S.	: + 3.5
<hr/>	
Speed	
Tolerance cm3/1000 strokes	: 4.0
<hr/>	
Check tolerance cm3/1000S.	: 7.5
<hr/>	

Rated speed rpm	: 400
Rack travel in mm	: 4.35
Tolerance mm	: + 0.10
Del. quantity cm3/1000 strokes	: 27.0
Tolerance cm3/1000 strokes	: + 3.0
Check tolerance cm3/1000S.	: + 5.5
Speed	
Tolerance cm3/1000 strokes	: 4.5
Check tolerance cm3/1000S.	: 7.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever position degree	: - 3
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: + 0.20
governor spring pre-tension click setting x	: 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 980
Aneroid pressure hPa	: 1220
Del. quantity cm3/1000 strokes	: 173.0
Tolerance cm3/1000 strokes	: + 1.0

Check tolerance cm3/1000S.	: + 3.5
Speed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 7.5

##### CONTROL LEVER

control lever position degree	: 105.0
tolerance degree	: + 4.0

##### RATED SPEED

rack travel mm	: 4.00
Rated speed rpm	: 1080
Tolerance 1/min	: + 15

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 1028
rack travel mm	: 11.10
Rated speed rpm	: 1083
Tolerance 1/min	: + 4
rack travel mm	: 4.00

Rated speed rpm	: 1029
rack travel mm	: 11.10

Rated speed rpm	: 1084
Tolerance 1/min	: + 4
rack travel mm	: 4.00

Rated speed rpm	: 1030
rack travel mm	: 11.10

Rated speed rpm	: 1085
Tolerance 1/min	: + 4
rack travel mm	: 4.00

Rated speed rpm	: 1031
rack travel mm	: 11.10

Rated speed rpm	: 1086
Tolerance 1/min	: + 4
rack travel mm	: 4.00

Rated speed rpm	: 1032
rack travel mm	: 11.10

Rated speed rpm	: 1087
-----------------	--------

Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

Rated speed rpm : 1033  
rack travel mm : 11.10

Rated speed rpm : 1088  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

---

#### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 3.85  
Tolerance mm :  $\pm$  0.10

#### Testing:

Rated speed rpm : 400  
rack travel mm : 4.35  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 495  
Tolerance 1/min :  $\pm$  50

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1220  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 730  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 670  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1220  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 193.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1220  
Rated speed rpm : 700  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 186.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### STARTING FUEL DELIVERY



Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 400  
  
Rack travel in mm : 4.35  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 27.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.98

Test oil : ISO 4113

Combination No. : 0 402 646 667

## Injection pump

Pump designation : PE6P120A32ORS7412

EP type number : 0 412 626 953

## Governor

Governor design. : RQV275...1000PA1278K

Governor no. : 0 421 815 509

Cust. part No. : 1310221/1

## Customer spec. information

Customer : DAF

Motor : XF 315 M

Power KW : 315.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 140

Tolerance l/h : ± 20.0

## Test nozzle holder

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.40

Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.20

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1077  
guide sleeve  
travel mm : 10.24  
Tolerance mm : ± 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : ± 0.20

Rated speed rpm : 704  
guide sleeve  
travel mm : 6.53  
Tolerance mm : ± 0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92  
Tolerance mm : ± 0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1158

Rack travel in mm : 12.00  
Tolerance mm : ± 2.70

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 12.40  
Rated speed rpm : 1040  
Tolerance 1/min : ± 5  
Check  
speed 1/min : ± 10

rack travel mm : 4.00  
Rated speed rpm : 1145  
Tolerance 1/min : ± 15  
Check  
speed 1/min : ± 20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  8.00

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
Pressure hPa : -  
rack travel mm : 8.55  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 980  
  
Pressure hPa : 520  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 210  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 342.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : 5.20  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.98  
Test oil : ISO 4113

Combination No. : 0 402 646 668

Injection pump  
Pump designation : PE6P120A320RS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1278  
: -1K  
Governor no. : 0 421 815 510

Cust. part No. : 1310220/1

Customer-spec. information  
Customer : DAF  
Motor : XF 280 M  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 145  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

C17

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.60

Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.20

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1062  
guide sleeve  
travel mm : 10.04  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 697  
guide sleeve  
travel mm : 6.48  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1171

Rack travel in mm : 10.70  
Tolerance mm :  $\pm$  2.00

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.35  
Rated speed rpm : 1050  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1150  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  7.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 775  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 775

Pressure hPa : 450  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 170  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 980  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0



Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.98  
Test oil : ISO 4113

Combination No. : 0 402 646 673

Injection pump  
Pump designation: PE6P120A320RS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1300K  
Governor no. : 0 421 815 527

Cust. part No. : 1315099

Customer-spec. information  
Customer : DAF  
Motor : XF 250 M  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 11.85  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1072  
guide sleeve  
travel mm : 10.16  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 701  
guide sleeve  
travel mm : 6.52  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 400  
guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1181

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.50  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1140  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  7.80

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 310

---

#### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 775  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 775  
Pressure hPa : 460  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 250  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 980  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.98  
Test oil : ISO 4113

Combination No. : 0 402 646 681

Injection pump  
Pump designation : PE6P120A320RS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RQV275...1000PA1381K  
Governor no. : 0 421 815 561

Cust. part No. : 1349846/0

Customer-spec. information  
Customer : DAF  
Motor : XF 250  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

C25

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

Rack travel in mm : 11.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.70

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.35  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1055  
guide sleeve  
travel mm : 7.47  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 820  
guide sleeve  
travel mm : 5.14  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.34  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1282  
guide sleeve  
travel mm : 12.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

Rated speed rpm : 1263

Rack travel in mm : 10.50  
Tolerance mm :  $\pm$  1.30

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.50  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.70  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1275

---

## LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  8.30

### Testing:

Rated speed rpm : 275  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

## TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500

C27

rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 775  
Pressure hPa : 460  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Rated speed rpm : 775

Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 250  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

---

## FUEL DELIVERY CHARACTERISTICS

---

### Aneroid pressure

hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0  
Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0

---

### Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 15.0



---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.20

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 13.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 30.06.98  
Test oil : ISO 4113

Combination No. : 0 402 746 650

Injection pump  
Pump designation : PES6P120A320RS7344  
EP type number : 0 412 726 914

Governor  
Governor design. : RQ275/1050PA999-6  
Governor no. : 0 421 801 785

Cust. part No. : CCEP 5151A 66-230

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 062045 M41  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 145  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : -0.15  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery differende

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference ° CS : 2.25

---

#### CRT ZERO POSITION

Rack travel in mm : 11.60  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : -7.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1131  
guide sleeve  
travel mm : 6.38  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275  
guide sleeve  
travel mm : 0.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 396  
guide sleeve  
travel mm : 2.99  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1350  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Anercid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 274.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : -1.00  
Rated speed rpm : 1135  
Tolerance 1/min :  $\pm$  5

rack travel mm : -7.60  
Rated speed rpm : 1240  
Tolerance 1/min :  $\pm$  15

rack travel mm : -11.10  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 251.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $<$  -5.80

Testing:

Rated speed rpm : 275  
rack travel mm : -7.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : -9.50  
Rated speed rpm : 365  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 600

Rated speed rpm : 1050  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000

D03

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -3.75  
Tolerance mm :  $\pm$  0.30

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 560  
rack travel mm : -1.35  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 320  
rack travel mm : -2.85  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  225

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  245

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 280.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 111.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 275  
  
Rack travel in mm : -7.00  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 37.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 655  
Injection pump  
Pump designation : PES6P120A320RS7343  
EP type number : 0 412 726 915  
Governor  
Governor design. : RQV300...1000PA1160  
: -1K  
Governor no. : 0 421 815 559  
Cust. part No. : 5168 66-250

## Customer-spec. information

Customer : RENAULT V.I.  
Motor : MIDR 062356 B41  
Power KW : 288.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1  
Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0  
Overflow valve : 2 417 413 071  
Inlet press. bar : 2.5  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5  
Test lines : 1 680 750 089  
Outside diameter : 8.0

D05

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0  
Prestroke mm : 4.50  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10  
Rack travel in mm : 11.00  
Tolerance mm : + 1.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Start of delivery mark  
°NW after s.o.d. : -0.40  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75  
Barrel no. : 1  
Beginning of delivery difference  
betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference ° CS : 2.25

## CRT ZERO POSITION

Rack travel in mm : 13.00  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1000

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 356.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -8.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1113  
guide sleeve

travel mm : 8.82  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve

travel mm : 1.29

D06

Tolerance mm :  $\pm$  0.20

Rated speed rpm : 827  
guide sleeve

travel mm : 5.96  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550

guide sleeve  
travel mm : 3.66

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1440

guide sleeve  
travel mm : 13.50

Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1275

Rack travel in mm : 12.00  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure

hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 356.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 296.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : -1.00

Rated speed rpm : 1100

Tolerance 1/min :  $\pm$  5

rack travel mm : -9.00

Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15  
  
rack travel mm : -12.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 252.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
  
CRT mm min. :  $>$  -7.00

#### Testing:

Rated speed rpm : 300  
rack travel mm : -8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 390

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
  
Rated speed rpm : 600  
rack travel mm : -0.40  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800  
rack travel mm : 0.10  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
rack travel mm : -1.55  
Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1200  
  
Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -4.20

D07

Tolerance mm :  $\pm$  0.30

#### MEASUREMENT

Rated speed rpm : 1000  
  
Pressure hPa : 320  
rack travel mm : -3.00  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 520  
rack travel mm : -1.90  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  240

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  250

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 390.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 0.10  
Tolerance mm :  $\pm$  0.15

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 238.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25



Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : -8.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.06.98  
Test oil : ISO 4113

Combination No. : 0 402 846 302

Injection pump  
Pump designation : PE6P120A320RS8520  
EP type number : 0 412 826 202

Governor  
Governor design. : RQV275...1000PA1269K  
Governor no. : 0 421 815 969

Cust. part No. : 1310222/2

Customer-spec. information  
Customer : DAF  
Motor : XF 355 M  
Power KW : 355.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 14.05  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

---

Rated speed rpm : 275

Rack travel in mm : 6.00

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1058  
guide sleeve  
travel mm : 9.97  
Tolerance mm : ± 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : ± 0.20

Rated speed rpm : 399  
guide sleeve  
travel mm : 3.65  
Tolerance mm : ± 0.25

Rated speed rpm : 1260

guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1121

Rack travel in mm : 13.30  
Tolerance mm : ± 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 344.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

---

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.05

Rated speed rpm : 1045

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1140

Tolerance 1/min : ± 15

Check  
speed 1/min : ± 20

rack travel mm : 0.70

Tolerance mm : ± 0.70

Rated speed rpm : 1275

---

##### LOW IDLE

control lever  
 position degree : 73.0  
 tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
 CRT mm min. :  $>$  8.50

Testing:

Rated speed rpm : 275  
 rack travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

#### TORQUE CONTROL

Rated speed rpm : 980  
 rack travel mm : 14.05  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
 rack travel mm : 14.05  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
 rack travel mm : 13.80  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
 rack travel mm : 13.40  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
 rack travel mm : 12.80  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
 rack travel mm : 12.45  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980  
 rack travel mm : 14.30  
 Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 980  
 Pressure hPa : 1500  
 rack travel mm : 14.05  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
 Pressure hPa : -  
 rack travel mm : 9.00  
 Tolerance mm :  $\pm$  0.10

#### MEASUREMENT

Rated speed rpm : 980  
 Pressure hPa : 750  
 rack travel mm : 12.80  
 Tolerance mm :  $\pm$  0.05

Pressure hPa : 380  
 rack travel mm : 10.30  
 Tolerance mm :  $\pm$  0.15

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 750  
 rack travel mm : 13.80  
 Tolerance mm :  $\pm$  0.05  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 361.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 15.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 199.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  5.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 15.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.98  
Test oil : ISO 4113

Combination No. : 0 402 946 027

Injection pump  
Pump designation : PES6P120A32ORS8047  
EP type number : 0 412 926 029

Governor  
Governor design. : RQV275...1250PA1312K  
Governor no. : 0 421 815 966

Cust. part No. : CCEP 5160A 66-244

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 06.02.26L71  
Power KW : 141.7

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 145  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

°NW after s.o.d. : -0.25  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference ° CS : 3.25

---

#### CRT ZERO POSITION

Rack travel in mm : 12.00  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1250

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 325

Rack travel in mm : -7.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1340  
guide sleeve  
travel mm : 9.96  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.52  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 923  
guide sleeve  
travel mm : 6.76  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1650  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1430

Rack travel in mm : 11.10  
Tolerance mm :  $\pm$  2.70

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Arieroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

#### CONTROL LEVER

control lever  
position degree : 292.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : -1.00

Rated speed rpm : 1310  
Tolerance 1/min : + 15

rack travel mm : -8.00  
Rated speed rpm : 1450  
Tolerance 1/min : + 5

rack travel mm : -11.50  
Tolerance mm : + 0.55  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 241.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : < -5.70

#### Testing:

Rated speed rpm : 325  
rack travel mm : -7.10  
Tolerance mm : + 0.10

Rated speed rpm : 325

---

#### TORQUE CONTROL

Rated speed rpm : 1250

Rated speed rpm : 650  
rack travel mm : -2.10  
Tolerance mm : + 0.10

Rated speed rpm : 350  
rack travel mm : -3.25  
Tolerance mm : + 0.25

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1250  
Pressure hPa : 1600  
Tolerance mm : + 0.10

Rated speed rpm : 500  
Pressure hPa : -

D15

rack travel mm : -4.80  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 1250

Pressure hPa : 240  
rack travel mm : -3.20  
Tolerance mm : + 0.20

Pressure hPa : 520  
rack travel mm : -1.30  
Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 175  
Rated speed rpm : < 240

Check  
speed 1/min : > 155  
Check  
speed 1/min : < 260

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 650  
Del. quantity  
cm3/1000 strokes : 169.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000S. : + 6.0

rack travel mm : -3.25  
Tolerance mm : + 0.25

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm3/1000 strokes : 114.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100



Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 14.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : -7.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113

Combination No. : 0 400 863 020

Injection pump  
Pump designation : PES3A95D410/3RS2905  
EP type number : 0 410 893 996

Governor  
Governor design. : RSV325...1250A5C858L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1592 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F3L912/913\_NEU  
Power KW : 40.5

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm : ± 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 11.5

Tolerance

cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 4.5

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : -

Del. quantity

cm<sup>3</sup>/1000 strokes : 76.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 10.35

Rated speed rpm : 1295

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1355

Tolerance 1/min : ± 15

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1530

rack travel mm : 4.00

Rated speed rpm : 1380

Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 8.00

Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 325

rack travel mm : 8.50

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 510

Tolerance 1/min : ± 30

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113  
  
Combination No. : 0 400 864 099  
  
Injection pump  
Pump designation : PES4A95D410/3RS2789  
EP type number : 0 410 894 995  
  
Governor  
Governor design. : RSV325...1250A5C358L  
Governor no. : 0 420 232 621

Cust. part No. : 0423 1595 KY

Customer spec. information  
Customer : KHD-DMI  
Motor : F4L912/913\_NEU  
Power KW : 54.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holde  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 3- 4- 2  
  
Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250  
  
Rack travel in mm : 11.35  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm3/1000 strokes : 76.0  
  
Tolerance  
cm3/1000 strokes : ± 1.0  
  
Check tolerance  
cm3/1000S. : ± 3.0  
  
Speed

Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 11.5

Tolerance  
cm3/1000 strokes : + 2.0

Check tolerance  
cm3/1000S. : + 4.5

Spread  
Tolerance  
cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.25

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 76.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 107.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1355  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1530

rack travel mm : 4.00  
Rated speed rpm : 1380  
Tolerance 1/min : + 15

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : + 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 510  
Tolerance 1/min : + 30

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113

Combination No. : 0 400 864 102

Injection pump  
Pump designation : PES4A95D410/3RS2789  
EP type number : 0 410 894 995

Governor  
Governor design. : RSV325...1250A5C8S1L  
Governor no. : 0 420 232 624

Cust. part No. : 0423 1789 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F4L912/913\_NEU  
Power KW : 59.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

Rated speed rpm : 325

Rack travel in mm : 8.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spread  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance

cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 3.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1339  
Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1510

rack travel mm : 4.00  
Rated speed rpm : 1360  
Tolerance 1/min : ± 15

---

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : ± 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

##### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm : ± 0.10

rack travel mm : 2.00  
Rated speed rpm : 473  
Tolerance 1/min : ± 30

---

##### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113

Combination No. : 0 400 866 222

Injection pump  
Pump designation : PES6A95D410/3RS2907  
EP type number : 0 410 896 884

Governor  
Governor design. : RSV325...1250A5C950L  
Governor no. : 0 420 232 641

Cust. part No. : 0423 1601 KY

Customer-spec. information  
Customer : KHD  
Motor : F6L912/913\_NEU  
Power KW : 81.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

## Spreed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm :  $\pm$  0.10

Del. quantity

cm3/1000 strokes : 11.5

Tolerance

cm3/1000 strokes :  $\pm$  2.0

Check tolerance

cm3/1000S. :  $\pm$  4.5

## Spreed

Tolerance

cm3/1000 strokes : 5.5

Check tolerance

cm3/1000S. : 9.0

## (B) SETTING OF INJECTION PUMP WITH GOVERNOR

### GUIDE SLEEVE POSITION

control lever

position degree : FREE

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.20

governor spring

pre-tension

click setting x : 4.25

### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250

Aneroid pressure

hPa : -

Del. quantity

cm3/1000 strokes : 76.0

Tolerance

cm3/1000 strokes :  $\pm$  1.0

Check tolerance

cm3/1000S. :  $\pm$  3.0

Spreed

Tolerance

cm3/1000 strokes : 3.5

Check tolerance

cm3/1000S. : 8.0

### CONTROL LEVER

control lever

position degree : 107.0

tolerance degree :  $\pm$  4.0

### RATED SPEED

rack travel mm : 10.35

Rated speed rpm : 1295

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1355

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1550

rack travel mm : 4.00

Rated speed rpm : 1400

Tolerance 1/min :  $\pm$  15

### LOW IDLE

control lever

position degree : 73.0

tolerance degree :  $\pm$  4.0

### Setting point w/out bumper spring

Rated speed rpm : 325

rack travel mm : 8.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

### Testing:

Rated speed rpm : 325

rack travel mm : 8.50

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 595

Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.07.98  
Test oil : ISO 4113  
  
Combination No. : 0 400 876 421  
  
Injection pump  
Pump designation : PES6A95D32ORS2848  
EP type number : 0 410 896 892  
  
Governor  
Governor design. : RSV500...1100A5C2269  
: R  
Governor no. : 0 420 233 338  
  
Cust. part No. :

---

Customer-spec. information  
Customer : VALMET  
Motor : 634 DS  
Power KW : 140.0

---

## TEST BENCH REQUIREMENTS

Inlet line : 2.3  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 419 992 198  
  
Inlet press. bar : 1.5  
  
Test nozzle holder  
assembly : 0 681 343 009  
  
Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 014  
  
Outside diameter : 6.0

E01

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 2.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 5- 3- 6- 2-  
: 4  
  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
  
Beginning of delivery difference  
and maximum rack  
travel : 10.50  
Tolerance mm : ± 1.50  
Difference ° CS : 5.00

## BASIC SETTING

Rated speed rpm : 1100  
  
Rack travel in mm : 14.05  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 133.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm3/1000S. :  $\pm$  3.0

---

Speed

Tolerance  
cm3/1000 strokes : 3.5

---

Check tolerance  
cm3/1000S. : 8.0

---

Rated speed rpm : 500

Rack travel in mm : 4.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 21.0

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Speed

Tolerance  
cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : -  
Del. quantity  
cm3/1000 strokes : 133.0

E02

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Speed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

---

##### CONTROL LEVER

control lever  
position degree : 100.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 13.00  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1375

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15

---

##### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

Testing:

Rated speed rpm : 500  
rack travel mm : 4.30  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 530  
Tolerance 1/min :  $\pm$  30

### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 14.05  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 700  
rack travel mm : 14.60  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 975  
rack travel mm : 14.30  
Tolerance mm :  $\pm 0.10$

---

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 900  
rack travel mm : 14.60  
Tolerance mm :  $\pm 0.10$

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.90  
Tolerance mm :  $\pm 0.05$

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 550  
rack travel mm : 13.20  
Tolerance mm :  $\pm 0.10$

Pressure hPa : 655  
rack travel mm : 13.90  
Tolerance mm :  $\pm 0.05$

---

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$

E03

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

---

rack travel mm : 14.30  
Tolerance mm :  $\pm 0.10$

---

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 103.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 3.0$

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm 0.75$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 7.5$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 10.0$

---

### LOW IDLE

Rated speed rpm : 500  
  
Rack travel in mm : 4.30  
Tolerance mm :  $\pm 0.10$   
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 3.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.5$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98  
Test oil : ISO 4113

Combination No. : 0 402 046 855

Injection pump  
Pump designation : PES6P110A32ORS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQV325...1300PA1119  
Governor no. : 0 421 814 083

Cust. part No. : 1284418/4

Customer spec. information  
Customer : DAF  
Motor : NS156M  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity  
cm3/1000 strokes : 144.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

#### Speed

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 26.0

Tolerance  
cm3/1000 strokes :  $\pm$  2.5

Check tolerance  
cm3/1000S. :  $\pm$  5.0

#### Speed

Tolerance  
cm3/1000 strokes : 4.0

Check tolerance  
cm3/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1353  
guide sleeve  
travel mm : 8.29  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 900  
guide sleeve  
travel mm : 4.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 405  
guide sleeve  
travel mm : 2.07

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 455  
guide sleeve  
travel mm : 2.52  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 2.93  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1640  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1450

Rack travel in mm : 10.80  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm3/1000 strokes : 144.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.85  
Rated speed rpm : 1342  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1460  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. :  $>$  6.00

Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

E06

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 7.35  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 200  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98  
Test oil : ISO 4113

Combination No. : 0 402 046 856

Injection pump  
Pump designation : PE6P110A32ORS3329Z  
EP type number : 0 412 016 744

Governor  
Governor design. : RQV325...1300PA1119  
Governor no. : 0 421 314 083

Cust. part No. : 1284417/5

Customer-spec. information  
Customer : DAF  
Motor : NS133M  
Power KW : 133.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1353  
guide sleeve  
travel mm : 8.29  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 900  
guide sleeve  
travel mm : 4.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 405  
guide sleeve  
travel mm : 2.07

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 455  
guide sleeve  
travel mm : 2.52  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 530  
guide sleeve  
travel mm : 2.93  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1640  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1450

Rack travel in mm : 10.80  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.85  
Rated speed rpm : 1342  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1460  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. :  $>$  3.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

E10

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 600  
Pressure hPa : 310  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 130  
rack travel mm : 7.85  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98

Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump

Pump designation : PE6P110A320RS3329

EP type number : 0 412 016 743

Governor

Governor design. : RQ325/1300PA1150

Governor no. : 0 421 801 716

Cust. part No. : 1284420/4

## Customer-spec. information

Customer : DAF

Motor : NS156M

Power Kw : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Test nozzle holder  
assembly

: 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85

Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1351  
guide sleeve

travel mm : 6.37  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 325

guide sleeve  
travel mm : 1.99

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1300

guide sleeve  
travel mm : 6.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 427

guide sleeve  
travel mm : 3.54

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 590

guide sleeve  
travel mm : 6.00

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1570

guide sleeve  
travel mm : 11.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : 109

Rated speed rpm : 650

Rack travel in mm : 20.00

Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever

position degree : 93.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.85

Rated speed rpm : 1345

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1450

Tolerance 1/min :  $\pm$  15

Check  
 speed 1/min : + 20  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
 position degree : 72.0  
 tolerance degree : + 4.0  
 Setting point w/out bumper spring  
 Rated speed rpm : 225  
 CRT mm min. : > 5.90

#### Testing:

Rated speed rpm : 325  
 rack travel mm : 4.50  
 Tolerance mm : + 0.10  
 rack travel mm : 2.00  
 Rated speed rpm : 415

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
 rack travel mm : 11.85  
 Tolerance mm : + 0.05

Rated speed rpm : 700  
 rack travel mm : 11.85  
 Tolerance mm : + 0.05

Rated speed rpm : 1300  
 rack travel mm : 11.85  
 Tolerance mm : + 0.05

Rated speed rpm : 1000  
 rack travel mm : 12.85  
 Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
 Pressure hPa : 1000  
 rack travel mm : 11.85

Tolerance mm : + 0.05  
 Rated speed rpm : 600  
 Pressure hPa : -  
 rack travel mm : 7.35  
 Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 600  
 Pressure hPa : 370  
 rack travel mm : 10.75  
 Tolerance mm : + 0.05  
 Pressure hPa : 200  
 rack travel mm : 8.55  
 Tolerance mm : + 0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 145.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.0

rack travel mm : 11.85  
 Tolerance mm : + 0.05

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 94.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.5

---

#### LOW IDLE

Rated speed rpm : 325  
 Rack travel in mm : 4.50  
 Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98  
Test oil : ISO 4113

Combination No. : 0 402 046 873

Injection pump  
Pump designation : PES6P110A320RS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQV325...1250PA1251  
Governor no. : 0 421 814 164

Cust. part No. : 1305227

Customer-spec. information  
Customer : DAF  
Motor : NS177M  
Power KW : 177.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1308  
guide sleeve

travel mm : 10.40  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 325  
guide sleeve

travel mm : 1.25  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 868  
guide sleeve

travel mm : 5.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520  
guide sleeve

travel mm : 3.02

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1510

guide sleeve

travel mm : 13.50

Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1360

Rack travel in mm : 11.25

Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 149.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever

position degree : 123.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.25

Rated speed rpm : 1290

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1375

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. :  $>$  5.90

Testing:

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 220  
rack travel mm : 7.85  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98  
Test oil : ISO 4113

Combination No. : 0 402 046 875

Injection pump  
Pump designation : PES6P110A320RS3329Z  
EP type number : 0 412 016 744

Governor  
Governor design. : RQV325...1250PA1251  
Governor no. : 0 421 814 164

Cust. part No. : 1309376/0

Customer-spec. information  
Customer : DAF  
Motor : NS156M  
Power KW : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 160  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

E20

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 325

Rack travel in mm : 4.50

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1298  
guide sleeve  
travel mm : 10.25  
Tolerance mm : ± 0.15

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.25  
Tolerance mm : ± 0.20

Rated speed rpm : 863  
guide sleeve  
travel mm : 5.41  
Tolerance mm : ± 0.25

Rated speed rpm : 520

guide sleeve  
travel mm : 3.02  
Tolerance mm : ± 0.25

Rated speed rpm : 1510  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1370

Rack travel in mm : 10.85  
Tolerance mm : ± 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 123.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 10.85  
Rated speed rpm : 1300  
Tolerance 1/min : ± 5  
Check  
speed 1/min : ± 10

rack travel mm : 4.00  
Rated speed rpm : 1375  
Tolerance 1/min : ± 15  
Check  
speed 1/min : ± 20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. :  $>$  6.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 7.35  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 370  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 200  
rack travel mm : 8.40  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98

Test oil : ISO 4113

Combination No. : 0 402 046 876

## Injection pump

Pump designation : PES6P110A320RS3329Y

EP type number : 0 412 016 756

## Governor

Governor design. : RQV325...1250PA1251

Governor no. : 0 421 814 164

Cust. part No. : 1309375/0

## Customer-spec. information

Customer : DAF

Motor : NS133M

Power KW : 133.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. L/h : 160

Tolerance L/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 101

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85

Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 325

Rack travel in mm : 4.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1298  
guide sleeve  
travel mm : 10.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.25  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 863  
guide sleeve  
travel mm : 5.41  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520

guide sleeve  
travel mm : 3.02  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1510  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1370

Rack travel in mm : 10.85  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 123.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.85  
Rated speed rpm : 1285  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. :  $>$  6.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 375

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1250  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 310  
rack travel mm : 10.55  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 130  
rack travel mm : 7.85  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 83.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.5

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98  
Test oil : ISO 4113

Combination No. : 0 402 046 881

Injection pump  
Pump designation : PES6P110A320RS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQ325...1250PA1370  
Governor no. : 0 421 801 828

Cust. part No. : 1305236

Customer-spec. information  
Customer : DAF  
Motor : NS177M  
Power Kw : 177.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 140  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 2.0

x inside diameter : 6.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 12.25  
Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	:	149.5
<hr/>		
Tolerance cm3/1000 strokes	:	± 1.0
<hr/>		
Check tolerance cm3/1000S.	:	± 4.0
<hr/>		
Speed		
<hr/>		
Tolerance cm3/1000 strokes	:	8.0
<hr/>		
Check tolerance cm3/1000S.	:	12.0
<hr/>		

Rated speed rpm	:	325
<hr/>		
Rack travel in mm	:	4.40
Tolerance mm	:	± 0.10
Del. quantity cm3/1000 strokes	:	26.0
Tolerance cm3/1000 strokes	:	± 3.0
Check tolerance cm3/1000S.	:	± 6.0
<hr/>		
Speed		
Tolerance cm3/1000 strokes	:	4.0
Check tolerance cm3/1000S.	:	8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

GUIDE SLEEVE TRAVEL

Rated speed rpm	:	1292
guide sleeve travel mm	:	6.37
Tolerance mm	:	± 0.15
<hr/>		
Rated speed rpm	:	325
guide sleeve travel mm	:	1.99
Tolerance mm	:	± 0.20
<hr/>		
Rated speed rpm	:	1000
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10
<hr/>		
Rated speed rpm	:	426

guide sleeve travel mm	:	3.48
Tolerance mm	:	± 0.10

Rated speed rpm	:	590
guide sleeve travel mm	:	6.00
Tolerance mm	:	± 0.10

Rated speed rpm	:	1460
guide sleeve travel mm	:	11.50
Tolerance mm	:	± 0.50

GUIDE SLEEVE POSITION

control lever position degree	:	109
----------------------------------	---	-----

control lever position degree	:	109
Rated speed rpm	:	600

Rack travel in mm	:	20.00
Tolerance mm	:	± 0.80

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	:	1000
Aneroid pressure hPa	:	1500
Del. quantity cm3/1000 strokes	:	149.5
Tolerance cm3/1000 strokes	:	± 1.0
Check tolerance cm3/1000S.	:	± 4.0
<hr/>		
Speed		
Tolerance cm3/1000 strokes	:	8.0
Check tolerance cm3/1000S.	:	12.0

CONTROL LEVER

control lever position degree	:	97.0
tolerance degree	:	± 4.0

RATED SPEED		
rack travel mm	:	11.25
Rated speed rpm	:	1290
Tolerance 1/min	:	± 5
Check speed 1/min	:	± 10

rack travel mm : 4.00  
Rated speed rpm : 1370  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1500

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
CRT mm min. :  $>$  6.00

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 415  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1250  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1500  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600

F02

Pressure hPa : -  
rack travel mm : 7.00  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 430  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 220  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.07.98

Test oil : ISO 4113

Combination No. : 0 402 076 821

Injection pump

Pump designation : PES6P120A720RS3340

EP type number : 0 412 026 773

Governor

Governor design. : RSV650...1050P8A566

: -6

Governor no. : 0 421 833 615

Cust. part No. :

Customer-spec. information

Customer : NH

Motor : EP 040 B

Power KW : 213.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 086

Inlet press. bar : 1.5

Overflow quantity

min. l/h : 110

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 103

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.30

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1025

Rack travel in mm : 13.35  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 650

Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1025

Aneroid pressure  
hPa : 1700

Del. quantity  
cm<sup>3</sup>/1000 strokes : 204.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### CONTROL LEVER

control lever  
position degree : 93.0  
tolerance degree :  $\pm$  4.0

#### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1067  
rack travel mm : 12.30

Rated speed rpm : 1097  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1068  
rack travel mm : 12.30

Rated speed rpm : 1098  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1069  
rack travel mm : 12.30

Rated speed rpm : 1099

Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1070  
rack travel mm : 12.30

Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1071  
rack travel mm : 12.30

Rated speed rpm : 1101  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1072  
rack travel mm : 12.30

Rated speed rpm : 1102  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55

---

#### LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 650  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

Testing:

Rated speed rpm : 650  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

F05

Rated speed rpm : 720

---

#### TORQUE CONTROL

Rated speed rpm : 1025  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 650  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1700  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.90  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 980  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.10

---

#### Start interlock

Rated speed rpm : > 100

Check  
speed 1/min : > 80

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1700  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

---

rack travel mm : 14.05  
Tolerance mm : ± 0.15

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : ± 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 135.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 650  
Rack travel in mm : 4.70  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 23.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.07.98  
Test oil : ISO 4113

Combination No. : 0 402 086 705

Injection pump  
Pump designation : PES6P100B321RS3388  
EP type number : 0 412 006 714

Governor  
Governor design. : RSV400...1125POA694  
Governor no. : 0 421 833 617

Cust. part No. : 51.11103-7606

## Customer-spec. information

Customer : MAN  
Motor : D0826 LE527  
Power KW : 169.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 13.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 925



Rack travel in mm : 13.90  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 400

Rack travel in mm : 4.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 5.50

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 925  
Aneroid pressure

hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 169.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

#### CONTROL LEVER

control lever  
position degree : 104.4  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1175

Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1260

Tolerance 1/min : ± 15

rack travel mm : 0.85  
Tolerance mm : ± 0.55

Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1265

Tolerance 1/min : ± 15

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 400  
rack travel mm : 4.30

Tolerance mm : ± 0.10

### Testing:

Rated speed rpm : 400  
rack travel mm : 4.80  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 500  
Tolerance 1/min :  $\pm$  30

### TORQUE CONTROL

Rated speed rpm : 925  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1125  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.10

### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 150  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 800  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.15

### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1125  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 146.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 90.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 112.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

### LOW IDLE

Rated speed rpm : 400  
Rack travel in mm : 4.80  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113

Combination No. : 0 402 646 649

Injection pump  
Pump designation : PE6P130A720RS7339  
EP type number : 0 412 636 833

Governor  
Governor design. : RQV300...950PA905-1  
Governor no. : 0 421 814 097

Cust. part No. :

Customer-spec. information  
Customer : IVECO-AIFO  
Motor : 8210.SRI  
Power KW : 353.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : + 0.1

Test nozzle holde  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.05  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 14.00  
Tolerance mm : + 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

Start of delivery mark

Check  
tolerance °NW : + 0.40

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 13.95  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 338.0

---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Spread

---

Tolerance  
cm3/1000 strokes : 8.0

---

Check tolerance  
cm3/1000S. : 12.0

---

Rated speed rpm : 300

Rack travel in mm : 4.70  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 24.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 7.0

Spread

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1000  
guide sleeve  
travel mm : 7.75  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.81  
Tolerance mm : + 0.20

Rated speed rpm : 409  
guide sleeve  
travel mm : 2.86  
Tolerance mm : + 0.25

Rated speed rpm : 459  
guide sleeve  
travel mm : 3.29  
Tolerance mm : + 0.25

Rated speed rpm : 720  
guide sleeve  
travel mm : 4.94  
Tolerance mm : + 0.25

Rated speed rpm : 1260  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1090

Rack travel in mm : 12.90  
Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950  
Aneroid pressure  
hPa : 1000

Del. quantity  
cm3/1000 strokes : 338.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 114.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 12.90  
Rated speed rpm : 995  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1115  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1200

---

## LOW IDLE

control lever  
position degree : 65.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.20

### Testing:

Rated speed rpm : 300  
rack travel mm : 4.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 430

---

## TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 13.95  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.25  
Tolerance mm :  $\pm$  0.15

### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 350  
rack travel mm : 10.75  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 520  
rack travel mm : 12.95  
Tolerance mm :  $\pm$  0.05

---

Start interlock

F13

Rated speed rpm :  $>$  100

Check  
speed 1/min :  $>$  80

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 196.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

## STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

---

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

## LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 24.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.07.98  
Test oil : ISO 4113

Combination No. : 0 402 646 681

Injection pump  
Pump designation : PE6P120A320RS7412  
EP type number : 0 412 626 953

Governor  
Governor design. : RGV275...100CPA1381K  
Governor no. : 0 421 815 561

Cust. part No. : 1349846/0

Customer-spec. information  
Customer : DAF  
Motor : XF 250  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05

Rack travel in mm : 11.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.70

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 11.35  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0



---

Tolerance  
cm3/1000 strokes : + 1.0

---

Check tolerance  
cm3/1000S. : + 4.0

---

Spread

---

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.20  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 13.5

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spread

Tolerance  
cm3/1000 strokes : 8.0

Check tolerance  
cm3/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1055  
guide sleeve  
travel mm : 7.47  
Tolerance mm : + 0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm : + 0.20

Rated speed rpm : 820  
guide sleeve  
travel mm : 5.14  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.34  
Tolerance mm : + 0.25

Rated speed rpm : 1282  
guide sleeve  
travel mm : 12.00  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1263

Rack travel in mm : 10.50  
Tolerance mm : + 1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm3/1000 strokes : 245.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 110.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 10.50  
Rated speed rpm : 1045  
Tolerance 1/min : + 5  
Check  
speed 1/min : + 10

rack travel mm : 4.00  
Rated speed rpm : 1130  
Tolerance 1/min : + 15  
Check  
speed 1/min : + 20

rack travel mm : 0.70  
Tolerance mm : + 0.70  
Rated speed rpm : 1275

---

## LOW IDLE

control lever  
position degree : 74.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  8.30

### Testing:

Rated speed rpm : 275  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

## TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500

rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 775  
Pressure hPa : 460  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

### MEASUREMENT

Rated speed rpm : 775

Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 250  
rack travel mm : 9.30  
Tolerance mm :  $\pm$  0.10

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 283.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 15.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 15.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 07.07.98  
Test oil : ISO 4113  
  
Combination No. : 0 402 646 706  
  
Injection pump  
Pump designation : PE6P120A320LS7929  
EP type number : 0 412 626 978

Governor  
Governor design. : RQ300/1050PA1395  
Governor no. : 0 421 801 837

Cust. part No. : 0280745602

---

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM441LA - EURO I  
Power KW : 218.0

---

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Tolerance l/h : ± 5.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

---

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

---

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.00  
Tolerance mm : ± 1.00

Firing order : 6- 3- 5- 2- 4-  
: 1

Phasing : 0- 60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 12.30  
Tolerance mm : ± 0.10

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rack travel in mm : 6.00  
Tolerance mm : ± 0.10

#### (B) SETTINGS OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108  
guide sleeve  
travel mm : 6.38  
Tolerance mm : ± 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.70  
Tolerance mm : ± 0.20

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 415  
guide sleeve  
travel mm : 4.47  
Tolerance mm : ± 0.10

Rated speed rpm : 510  
guide sleeve  
travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1280  
guide sleeve  
travel mm : 11.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

Rated speed rpm : 1158

Rack travel in mm : 11.00  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 2.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 92.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.30  
Rated speed rpm : 1100  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1175  
Tolerance 1/min : ± 10

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree : ± 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
 CRT mm min. : > 8.20  
 Testing:  
 Rated speed rpm : 300  
 rack travel mm : 6.00  
 Tolerance mm :  $\pm$  0.10  
 rack travel mm : 2.00  
 Rated speed rpm : 405  
 Tolerance 1/min :  $\pm$  20

#### TORQUE CONTROL

Rated speed rpm : 1050  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 600  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.20  
 Rated speed rpm : 1050  
 rack travel mm : 12.55  
 Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1000  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.10  
 Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : 10.20  
 Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 500  
 Pressure hPa : 350  
 rack travel mm : 10.60  
 Tolerance mm :  $\pm$  0.05  
 Pressure hPa : 600  
 rack travel mm : 11.80  
 Tolerance mm :  $\pm$  0.10

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1000  
 Rated speed rpm : 600  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 203.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

rack travel mm : 12.55  
 Tolerance mm :  $\pm$  0.05

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 138.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  2.0  
 Spreed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 190.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  15.0

#### LOW IDLE

Rack travel in mm : 6.00  
 Tolerance mm :  $\pm$  0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98

Test oil : ISO 4113

Combination No. : 0 402 648 700

Injection pump  
Pump designation : PE8P120A320LS7910  
EP type number : 0 412 628 924

Governor  
Governor design. : RQV350...1050PA1338  
Governor no. : 0 421 814 192

Cust. part No. : 027 074 5302

## Customer-spec. information

Customer : MB-NFZ

Motor : OM442A Euromot

Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : + 0.1

Overflow quantity  
min. l/h : 265  
Tolerance l/h : + 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : + 1.5

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 5.25  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 20.50  
Tolerance mm : + 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## Start of delivery mark

Tolerance : + 0.10  
Check  
tolerance °NW : + 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1030

Rack travel in mm : 12.80  
Tolerance mm : + 0.05



---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1107  
guide sleeve  
travel mm : 8.18  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.02  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 890  
guide sleeve  
travel mm : 5.70  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 560

guide sleeve  
travel mm : 3.60  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1197  
guide sleeve  
travel mm : 10.00  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 1161

Rack travel in mm : 12.20  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030  
Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.80  
Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.85  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  6.70

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10  
  
Rated speed rpm : 400  
rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 825  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : -

#### MEASUREMENT

Pressure hPa : 250  
rack travel mm : 0.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 400

F25

rack travel mm : 1.75  
Tolerance mm :  $\pm$  0.15

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0

Tolerance  
cm<sup>3</sup>/1000 strokes : +- 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.20  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.07.98  
Test oil : ISO 4113

Combination No. : 0 402 676 817

Injection pump  
Pump designation : PE6P120A720RS7188  
: -10  
EP type number : 0 412 626 924

Governor  
Governor design. : RSV350...1050P1A543  
: -3  
Governor no. : 0 421 833 426

Cust. part No. : 1355270

Customer-spec. information  
Customer : SCANIA  
Motor : DS1166 A

## TEST BENCH REQUIREMENTS

Inlet line : 4.2

Vibration  
damper  
(RoBo diaphragm) : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 205  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

---

### BASIC SETTING

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 212.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

---

#### Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 350

Rack travel in mm : 4.70

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 6.00

---

### CONTROL LEVER

control lever  
position degree : 67.0  
tolerance degree : ± 4.0

control lever  
position degree : 117.0  
tolerance degree : ± 4.0

#### RATED SPEED

rack travel mm : 11.50

Rated speed rpm : 1095

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1170

Tolerance 1/min : ± 15

Check  
speed 1/min : ± 20

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1300

---

### LOW IDLE

control lever  
position degree : 81.0  
tolerance degree : ± 4.0

control lever  
position degree : 31.0  
tolerance degree : ± 4.0

#### Setting point w/out bumper spring

Rated speed rpm : 350  
rack travel mm : 4.20  
Tolerance mm : ± 0.10

Rated speed rpm : 100

CRT mm min. : > 19.50

#### Testing:

Rated speed rpm : 350  
rack travel mm : 4.70  
Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 480  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 520  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.15  
  
Pressure hPa : 700  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 4.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113

Combination No. : 0 402 676 833

Injection pump  
Pump designation : PE6P120A320RS7426  
EP type number : 0 412 626 958

Governor  
Governor design. : RSV300...1100P1A650  
Governor no. : 0 421 833 567

Cust. part No. : 3826502 P04 v.06/97

## Customer-spec. information

Customer : PENTA  
Motor : TWD 1031 VE  
Power KW : 235.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 300  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 7.40  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50

Check  
tolerance °NW : + 0.75

Barrel no. : 1

---

#### BASIC SETTING

Rated speed rpm : 1050

---

Rack travel in mm : 12.00  
Tolerance mm : + 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

Rated speed rpm : 300

Rack travel in mm : 4.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : + 0.20

governor spring  
pre-tension  
click setting x : 4.25

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

#### CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree : + 4.0

control lever  
position degree : 107.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.00  
Rated speed rpm : 1080  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1125  
Tolerance 1/min : + 15

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1250

---

#### LOW IDLE



control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 23.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.10

Testing:

Rated speed rpm : 300  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 360  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 7.40  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 840  
rack travel mm : 3.90  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 220  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 328.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 9.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 13.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 188.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113

Combination No. : 0 402 736 889

Injection pump  
Pump designation : PES6P120A120RS7390  
EP type number : 0 412 726 945

Governor  
Governor design. : RQV350...1100PA1244K  
Governor no. : 0 421 815 477

Cust. part No. : 3283279

Customer-spec. information  
Customer : CUMMINS  
Motor : 6CTAA  
Power KW : 179.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 1.5

Overflow quantity  
min. L/h : 90  
Tolerance L/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.30  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 7.70  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 13.70  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1159  
guide sleeve  
travel mm : 10.27  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.93  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 710  
guide sleeve  
travel mm : 5.79  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 420  
guide sleeve  
travel mm : 4.28  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1380  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1195

Rack travel in mm : 12.00  
Tolerance mm :  $\pm$  2.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 173.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 122.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.70  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1245  
Tolerance 1/min :  $\pm$  15

Check  
 speed 1/min : + 20  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
 position degree : 74.0  
 tolerance degree : + 4.0

control lever  
 position degree : 20.0  
 tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
 CRT mm min. : > 7.50

#### Testing:

Rated speed rpm : 350  
 rack travel mm : 5.10  
 Tolerance mm : + 0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
 rack travel mm : 13.70  
 Tolerance mm : + 0.05

Rated speed rpm : 700  
 rack travel mm : 13.85  
 Tolerance mm : + 0.10

Rated speed rpm : 500  
 rack travel mm : 12.95  
 Tolerance mm : + 0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 700  
 Pressure hPa : 1500  
 rack travel mm : 13.85  
 Tolerance mm : + 0.10

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Rated speed rpm : 700  
 Pressure hPa : -  
 rack travel mm : 10.70  
 Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 700  
 Pressure hPa : 400  
 rack travel mm : 11.70  
 Tolerance mm : + 0.20

Pressure hPa : 600  
 rack travel mm : 13.30  
 Tolerance mm : + 0.05

---

#### Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : < 290

Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 300

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 171.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 6.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 8.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 12.95  
 Tolerance mm : + 0.15

---

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 104.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm : +- 0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 24.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.10  
Tolerance mm : +- 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : +- 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : +- 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98

Test oil : ISO 4113

Combination No. : 0 402 746 606

Injection pump

Pump designation : PES6P110A720RS7406

EP type number : 0 412 716 810

Governor

Governer design. : RQV300...1050PA1090

: -1K

Governer no. : 0 421 815 497

Cust. part No. : 9279607

## Customer-spec. information

Customer : LIEBHERR

Motor : D 926 Ti-E

Power KW : 230.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 125

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.00

Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 205.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.27  
Tolerance mm : + 0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.86  
Tolerance mm : + 0.20

Rated speed rpm : 756  
guide sleeve  
travel mm : 6.17  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : + 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1180

Rack travel in mm : 12.80  
Tolerance mm : + 2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 12.80  
Rated speed rpm : 1090  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0



Setting point w/out bumper spring

Rated speed rpm : 250

CRT. mm min. : > 7.40

Testing:

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 420

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 950  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.15

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
Pressure hPa : -  
Tolerance mm :  $\pm$  0.15

##### MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 670  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
Tolerance mm :  $\pm$  0.15  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 182.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.20

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 25.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance

cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98  
Test oil : ISO 4113

Combination No. : 0 402 746 606A

Injection pump  
Pump designation : PES6P110A720RS7406  
EP type number : 0 412 716 810

Governor  
Governor design. : RQV300...1050PA1090  
: -1K  
Governor no. : 0 421 815 497

Cust. part No. : 9279608

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 926 TI-E A3  
Power KW : 230.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 125  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.00  
Tolerance mm : ± 1.00

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 13.80  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

---

Spread

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 25.0

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

---

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1102  
guide sleeve  
travel mm : 10.05  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.86  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 749  
guide sleeve  
travel mm : 6.11  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1180

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  2.00

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm3/1000 strokes : 205.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 116.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 12.80  
Rated speed rpm : 1090  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1195  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 7.40

Testing:

Rated speed rpm : 350  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 420

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.90  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 950  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.45  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
Pressure hPa : -  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 940  
rack travel mm : 13.00  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 670  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 194.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
Tolerance mm :  $\pm$  0.15  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 207.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 182.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 175.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 25.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.07.98  
Test oil : ISO 4113  
Combination No. : 0 402 746 633  
Injection pump  
Pump designation : PES6P120A72ORS7366  
EP type number : 0 412 726 933  
Governor  
Governor design. : RQ300/1050PA1344  
Governor no. : 0 421 801 821

Cust. part No. :

Customer-spec. information  
Customer : IVECO-FRANCE  
Motor : 8460.41R.7143  
Power KW : 214.0

## TEST BENCH REQUIREMENTS

Inlet line : 4.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 076  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 180  
Tolerance l/h : ± 20.0  
Test nozzle holder  
assembly : 1 688 901 105  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089  
Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery mark  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.40  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 11.85  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 226.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 500

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 226.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 94.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 1103  
Tolerance 1/min :  $\pm$  8  
Check  
speed 1/min :  $\pm$  13

rack travel mm : 4.00  
Rated speed rpm : 1180  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

##### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  7.80

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.50  
Tolerance mm :  $\pm$  0.10



rack travel mm : 2.00  
Rated speed rpm : 395  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 850  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 950  
rack travel mm : 12.25  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : 1200  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 260  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 420  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100

G20

Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  80

Check  
speed 1/min :  $<$  260

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1200  
Rated speed rpm : 500  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 256.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 148.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 20.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 04.07.98  
Test oil : ISO 4113

Combination No. : 0 400 678 040

Injection pump  
Pump designation : PE8A95D410LS2608  
EP type number : 0 410 698 988

Governor  
Governor design. : RSV300...1325A8C1002  
: L  
Governor no. : 0 420 232 310

Cust. part No. :

Customer-spec. information  
Customer : KHD  
Motor : F8L413F  
Power KW : 188.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : + 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : + 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : + 1.0

Prestroke mm : 2.05  
Tolerance mm : + 0.05  
Check  
tolerance mm : + 0.10

Rack travel in mm : 10.50  
Tolerance mm : + 1.50

Firing order : 1- 8- 7- 2- 6  
: - 5- 4- 3

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : + 0.50  
Check  
tolerance °NW : + 0.75

## BASIC SETTING

Rated speed rpm : 1325

Rack travel in mm : 9.75  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

Rated speed rpm : 300

Rack travel in mm : 6.00

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.65  
Tolerance mm :  $\pm$  0.35

governor spring  
pre-tension  
click setting x : 4.75

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1325  
Aneroid pressure  
hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 92.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : 6.0

---

##### CONTROL LEVER

control lever  
position degree : 113.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 8.70  
Rated speed rpm : 1370  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1405  
Tolerance 1/min :  $\pm$  15

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1575

---

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 340  
Tolerance 1/min :  $\pm$  30

Rated speed rpm : 700

CRT mm max. :  $<$  1.00

##### SET IDLE AUXILIARY SPRING

Rated speed rpm : 700

---

##### TORQUE CONTROL

Rated speed rpm : 1325  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.05  
Tolerance mm :  $\pm$  0.05

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 122.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  5.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.5

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.07.98  
Test oil : ISO 4113  
Combination No. : 0 400 846 520  
Injection pump  
Pump designation : PES6A95D410LS2644  
EP type number : 0 410 896 924  
Governor  
Governor design. : RQV250...1100AB1178L  
Governor no. : 0 420 212 164

Cust. part No. :

Customer-spec. information  
Customer : MAN  
Motor : D2566 ME

## TEST BENCH REQUIREMENTS

Inlet line : 3.2  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.0

Test nozzle holde  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 1.55  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Del. quantity  
cm3/1000 strokes : 125.5

Tolerance  
cm3/1000 strokes : ± 1.0

Check tolerance  
cm3/1000S. : ± 3.0

## Speed

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 6.0

Rated speed rpm : 250  
 Rack travel in mm : 7.00  
 Tolerance mm : + 0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 12.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 5.5  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 5.0

#### (8) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
 position degree : - 1  
 Rated speed rpm : 1125  
 Rack travel in mm : 16.50  
 Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
 Aneroid pressure  
 hPa : -  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 125.5  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : + 1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : + 3.0  
 Spread  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 3.5  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 6.0

##### CONTROL LEVER

control lever  
 position degree : 48.0  
 tolerance degree : + 4.0

RATED SPEED  
 rack travel mm : 11.00

Rated speed rpm : 1145  
 Tolerance 1/min : + 5  
 rack travel mm : 4.00  
 Rated speed rpm : 1190  
 Tolerance 1/min : + 15  
 rack travel mm : 0.50  
 Tolerance mm : + 0.50  
 Rated speed rpm : 1300

##### LOW IDLE

control lever  
 position degree : 12.0  
 tolerance degree : + 4.0

##### Setting point w/out bumper spring

Rated speed rpm : 100  
 CRT mm min. : > 8.50

##### Testing:

Rated speed rpm : 250  
 rack travel mm : 7.00  
 Tolerance mm : + 0.10  
 rack travel mm : 2.00  
 Rated speed rpm : 370  
 Tolerance 1/min : + 30

##### Start interlock

Rated speed rpm : > 100  
 Rated speed rpm : < 170  
 Check  
 speed 1/min : > 80  
 Check  
 speed 1/min : < 190

##### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 110.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.5

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 114.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.5  
Check tolerance  
cm<sup>3</sup>/1000s. : + 4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.30  
Tolerance mm : + 0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 126.5  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 8.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 7.00  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0  
Check tolerance  
cm<sup>3</sup>/1000s. : + 5.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 5.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.07.98

Test oil : ISO 4113

Combination No. : 0 401 078 002

Injection pump

Pump designation : PE8A100D320RS3009

EP type number : 0 411 008 002

Governor

Governor design. : RSV300...1150A1C489R

Governor no. : 0 420 233 190

Cust. part No. :

## Customer-spec. information

Customer : MWM

Motor : D232-8

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 922 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly

: 0 681 343 009

Opening pressure  
bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

### (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.05

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 8- 5- 4- 7

: - 2- 3- 6

Phasing : 0-30-90-120-180

: -210-270-300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

### BASIC SETTING

Del. quantity

cm<sup>3</sup>/1000 strokes : 91.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000S. : ± 3.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance

cm<sup>3</sup>/1000S. : 6.0

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 17.5  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  5.5

Spread  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 5.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1130  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 91.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spread  
Tolerance  
cm3/1000 strokes : 3.5  
Check tolerance  
cm3/1000S. : 6.0

##### CONTROL LEVER

control lever  
position degree : 60.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 8.50

H01

Rated speed rpm : 1175  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1215  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 4.00

##### LOW IDLE

control lever  
position degree : 25.0  
tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

##### Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 515  
Tolerance 1/min :  $\pm$  30

##### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 16.00  
Tolerance mm :  $\pm$  0.30

##### LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 17.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 06.01.98

Test oil : ISO 4113

Combination No. : 0 402 036 762

Injection pump

Pump designation : PES6P110A120RS3353

EP type number : 0 412 016 752

Governor

Governer design. : RQV450...1100PA1233

: -1K

Governer no. : 0 421 815 479

Cust. part No. : 3926776

## Customer-spec. information

Customer : CDC

Motor : 6CTA

Power KW : 194.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

Test nozzle holde  
assembly

: 1 688 901 103

Opening pressure  
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 015

Outside diameter : 6.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

### (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.00

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery differende

and maximum rack

travel : 13.00

Difference ° CS : 1.20

---

#### BASIC SETTING

Rated speed rpm : 1000

---

Rack travel in mm : 13.15  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 500

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.20

Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1214  
guide sleeve  
travel mm : 8.09  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500  
guide sleeve  
travel mm : 1.82

H04

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 890  
guide sleeve  
travel mm : 4.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1570  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure

hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 206.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  6.0

#### RATED SPEED

rack travel mm : 11.45  
Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  15

rack travel mm : 7.95  
Rated speed rpm : 1230  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 79.0  
tolerance degree :  $\pm$  6.0

Control lever difference  
Grad : 38.0  
tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 400  
CRT mm min. :  $>$  7.50

Testing:

Rated speed rpm : 500  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 500

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.15  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1100  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1200

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : 10.15  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1000  
  
Pressure hPa : 720  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.30

Pressure hPa : 580  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  380

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  390

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1200  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

##### Aneroid pressure

hPa : 1200  
Rated speed rpm : 1100  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 124.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100

rack travel mm : 21.00  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 161.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 500  
  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 22.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.07.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 069

Injection pump  
Pump designation : PES6A95D320/3RS2881  
EP type number : 9 410 037 215

Governor  
Governor design. : RSV500...1100A2C947R  
Governor no. : F 002 A20 248

Cust. part No. : 3933623

Customer-spec. information  
Customer : CDC  
Motor : 6BTA  
Power KW : 125.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

H07

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 8.50  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100



Rack travel in mm : 13.25  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.5

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

---

Check tolerance  
cm<sup>3</sup>/1000s. : 6.0

---

Rated speed rpm : 500

Rack travel in mm : 5.85  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  4.5

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000s. : 5.5

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1400  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 113.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  3.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000s. : 6.0

---

##### CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.25  
Rated speed rpm : 1165  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1270  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1400

rack travel mm : 4.00  
Rated speed rpm : 1270  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

---

##### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 20.0  
tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 500  
rack travel mm : 5.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  19.00

Testing:

Rated speed rpm : 500  
rack travel mm : 5.85  
Tolerance mm :  $\pm$  0.10

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 14.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1400

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 800  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 600  
rack travel mm : 11.85  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1400  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

rack travel mm : 13.90  
Tolerance mm :  $\pm$  0.20

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 86.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

---

#### LOW IDLE

Rated speed rpm : 500  
Rack travel in mm : 5.85  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 5.5

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 03.07.98  
Test oil : ISO 4113

Combination No. : C 402 648 708

Injection pump  
Pump designation : PE8P120A320LS7927  
EP type number : 0 412 628 934

Governor  
Governor design. : RQ300/1050PA1389  
Governor no. : 0 421 801 836

Cust. part No. :

## Customer-spec. information

Customer : DHI  
Motor : DV15TIS Euro II  
Power KW : 310.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.80  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 500

Rack travel in mm : 12.65  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 229.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Rated speed rpm : 300

Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1108  
guide sleeve  
travel mm : 6.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.31  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1050  
guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 441  
guide sleeve  
travel mm : 3.98  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 560

guide sleeve  
travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1290  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 800

Rack travel in mm : 20.00  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500  
Aneroid pressure  
hPa : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 229.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

##### CONTROL LEVER

control lever  
position degree : 34.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 96.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 13.00  
Rated speed rpm : 1102  
Tolerance 1/min :  $\pm$  8

rack travel mm : 4.00  
Rated speed rpm : 1205  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

## LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 10.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. :  $>$  7.50

Testing:

Rated speed rpm : 300  
rack travel mm : 6.00  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 425  
Tolerance 1/min :  $\pm$  30

---

## TORQUE CONTROL

Rated speed rpm : 500  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1800  
rack travel mm : 1.35  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : -4.15  
Tolerance mm :  $\pm$  0.20

---

## 2-stage LDA setting

Rated speed rpm : 500  
Pressure hPa : 800

## MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : -0.95  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 300  
rack travel mm : -3.05  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 1400  
rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.10

Pressure hPa : 1200  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

## Start interlock

Rated speed rpm :  $>$  205  
Rated speed rpm :  $<$  250

Check  
speed 1/min :  $>$  185  
Check  
speed 1/min :  $<$  260

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 258.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

Aneroid pressure  
hPa : 1800  
Rated speed rpm : 600  
rack travel mm : 14.00

Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 275.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 128.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 6.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.07.98

Test oil : ISO 4113

Combination No. : 0 402 678 836

## Injection pump

Pump designation : PE8P120A320LS7844

EP type number : 0 412 628 860

## Governor

Governor design. : RSV550...1050POA672

Governor no. : 0 421 833 591

Cust. part No. : 0270746402

## Customer-spec. information

Customer : MB-NFZ

Motor : OM442LA

Power KW : 370.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 225

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 105

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.05

Tolerance mm : ± 0.05

Check tolerance mm : ± 0.10

Rack travel in mm : 20.00

Tolerance mm : ± 1.00

Firing order : 8- 7- 2- 6- 3  
                  : - 5- 4- 1

Phasing : 0-45-90-135-180  
          : -225-270-315

Tolerance : ± 0.50

Check tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

Check tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1030



Rack travel in mm : 15.60  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 550

Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1200

Rated speed rpm : 1071  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1111  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1200

Rated speed rpm : 1072  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 14.60

Rated speed rpm : 1112  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1073  
Tolerance 1/min : + 1  
rack travel mm : 14.60

Rated speed rpm : 1113  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1074  
Tolerance 1/min : + 1  
rack travel mm : 14.60

Rated speed rpm : 1114  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

Rated speed rpm : 1175  
Tolerance 1/min : + 1  
rack travel mm : 14.60

Rated speed rpm : 1115  
Tolerance 1/min : + 4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : + 0.55  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. : > 19.50

H17

#### Testing:

Rated speed rpm : 550  
rack travel mm : 4.00  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 570  
Tolerance 1/min : + 30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 15.60  
Tolerance mm : + 0.05

Rated speed rpm : 600  
rack travel mm : 15.60  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

#### CRT ZERO POSITION

Rack travel in mm : 9.75  
Tolerance mm : + 0.15

Rated speed rpm : 450  
Pressure hPa : 1200  
rack travel mm : 15.60  
Tolerance mm : + 0.10

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 9.75  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 450

Pressure hPa : 600  
rack travel mm : 12.20  
Tolerance mm : + 0.15

Pressure hPa : 800  
rack travel mm : 14.10  
Tolerance mm : + 0.20

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 287.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 162.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

---

## STARTING FUEL DELIVERY

---

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

---

## LOW IDLE

---

Rated speed rpm : 550  
  
Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 10.07.98

Test oil : ISO 4113

Combination No. : 0 402 678 837

## Injection pump

Pump designation : PE8P12QA320LS7911

EP type number : 0 412 628 926

## Governor

Governer design. : RSV550...1050POA679

Governer no. : 0 421 833 598

Cust. part No. : 027 074 6502

## Customer-spec. information

Customer : MB-NFZ

Motor : OM442LA, Euro

Power kW : 320.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 110

Tolerance l/h : ± 10.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 14.40  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 550

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 2.00

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050

Aneroid pressure  
hPa : 1100

Del. quantity  
cm<sup>3</sup>/1000 strokes : 227.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 87.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1085  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1125  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1087  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1127  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1089  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1129  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1091  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1131  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1093  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1133  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1095  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 13.50

Rated speed rpm : 1135  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 550  
rack travel mm : 4.20  
Tolerance mm :  $\pm$  0.10

H21

rack travel mm : 2.00  
Rated speed rpm : 580  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 450  
Pressure hPa : 1100  
rack travel mm : 15.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 11.10  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 450

Pressure hPa : 750  
rack travel mm : 14.30  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 550  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1100  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 248.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 166.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 10.07.98

Test oil : ISO 4113

Combination No. : 0 402 678 839

## Injection pump

Pump designation : PE8P120A320LS7912

EP type number : 0 412 628 927

## Governor

Governer design. : RSV550...1050POA681

Governer no. : 0 421 833 600

Cust. part No. : 028 074 2802

## Customer-spec. information

Customer : MB-NFZ

Motor : OM402LA, Euro

Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 120

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.55

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3

: - 5- 4- 1

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 8

## BASIC SETTING

Rated speed rpm : 1030



Rack travel in mm : 13.70  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 550

Rack travel in mm : 4.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1030

Aneroid pressure  
hPa : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 208.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 88.0  
tolerance degree :  $\pm$  4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1070  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.70

Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1071  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.70

Rated speed rpm : 1111  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1072  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.70

Rated speed rpm : 1112  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1073  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.70

Rated speed rpm : 1113  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.35  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1074  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.70

Rated speed rpm : 1114  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1075  
Tolerance 1/min :  $\pm$  1  
rack travel mm : 12.70

Rated speed rpm : 1115  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

Testing:

Rated speed rpm : 550  
rack travel mm : 4.10

H25

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 575  
Tolerance 1/min :  $\pm$  30

#### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

---

#### TORQUE CONTROL

Rated speed rpm : 1030  
rack travel mm : 13.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 14.20  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 450  
Pressure hPa : 1000  
rack travel mm : 14.70  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 450  
Pressure hPa : -  
rack travel mm : 12.40  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

Rated speed rpm : 450

Pressure hPa : 750  
rack travel mm : 14.00  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 650  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000

Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 14.20  
Tolerance mm : ± 0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 220.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 15.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 19.0

---

#### LOW IDLE

Rated speed rpm : 550  
Rack travel in mm : 4.10  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 01.10.97

Test oil : ISO 4113

Combination No. : 0 402 646 781

## Injection pump

Pump designation : PE6P120A320LS7854

EP type number : 0 412 626 872

## Governor

Governor design. : RQV350...950PA1118

Governor no. : 0 421 814 081

Cust. part No. : 0250742002

## Customer-spec. information

Customer : MB-NFZ

Motor : OM441 LA

Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 140

Tolerance l/h : ± 10.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.25

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 6- 3- 5- 2- 4-

: 1

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

Start of delivery mark

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 950

Rack travel in mm : 14.50

Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1010  
guide sleeve

travel mm : 9.49  
Tolerance mm : ± 0.15

Rated speed rpm : 350

guide sleeve  
travel mm : 1.22

Tolerance mm : ± 0.20

Rated speed rpm : 403

guide sleeve  
travel mm : 1.97

Tolerance mm : ± 0.25

Rated speed rpm : 453

guide sleeve  
travel mm : 2.56

Tolerance mm : ± 0.25

Rated speed rpm : 720

guide sleeve  
travel mm : 4.94

Tolerance mm : ± 0.25

Rated speed rpm : 1210

guide sleeve  
travel mm : 13.50

Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1080

Rack travel in mm : 13.50

Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 950

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 252.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever

position degree : 103.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 13.50

Rated speed rpm : 995

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1075

Tolerance 1/min : ± 15

rack travel mm : 0.70

Tolerance mm : ± 0.70

Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 68.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. :  $>$  9.00

Testing:

Rated speed rpm : 350  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 950  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 600  
rack travel mm : 14.50  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

##### CRT ZERO POSITION

Rack travel in mm : 10.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 500  
Pressure hPa : -

Rated speed rpm : 500  
Pressure hPa : 350  
rack travel mm : 1.35  
Tolerance mm :  $\pm$  0.05

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 600  
rack travel mm : 2.60  
Tolerance mm :  $\pm$  0.10

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  270

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  290

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 136.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

Check tolerance  
cm<sup>3</sup>/1000S. : +- 14.0

---

LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 5.40

Tolerance mm : +- 0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 19.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance

cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.09.97

Test oil : ISO 4113

Combination No. : 0 402 648 780

## Injection pump

Pump designation : PE8P120A320LS7871

EP type number : 0 412 628 877

## Governor

Governer design. : RQV300...1050PA1078

: -2K

Governer no. : 0 421 815 548

Cust. part No. : 988 04 47

## Customer-spec. information

Customer : LIEBHERR

Motor : D 9408 TI-EA3

Power KW : 420.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 230

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.65

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6

: - 3- 5- 4

Phasing : 0-45-90-135-180

: -225-270-315

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.65

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 295.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0



Check tolerance  
cm3/1000S. : + 4.0

---

Spread

Tolerance  
cm3/1000 strokes : 5.0

---

Check tolerance  
cm3/1000S. : 9.0

---

Rated speed rpm : 350

Rack travel in mm : 5.50  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 30.0

Tolerance  
cm3/1000 strokes : + 3.0

Check tolerance  
cm3/1000S. : + 6.0

Spread

Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.27  
Tolerance mm : + 0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.11  
Tolerance mm : + 0.20

Rated speed rpm : 755  
guide sleeve  
travel mm : 6.17  
Tolerance mm : + 0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm : + 0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm : + 0.50

---

GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1180

Rack travel in mm : 12.50  
Tolerance mm : + 2.70

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm3/1000 strokes : 295.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

---

CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree : + 4.0

RATED SPEED  
rack travel mm : 11.65  
Rated speed rpm : 1110  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : + 15

rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1300

---

LOW IDLE

control lever  
position degree : 71.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. : > 6.60

Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 1050  
Pressure hPa : 1050  
rack travel mm : 11.80

Tolerance mm :  $\pm$  0.05

Pressure hPa : 700  
rack travel mm : 9.50  
Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 276.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.09.97  
Test oil : ISO 4113  
  
Combination No. : 0 402 648 780A  
  
Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877  
  
Governor  
Governor design. : RQV3CU...1050PA1078  
: -2K  
Governor no. : 0 421 815 548  
  
Cust. part No. : 988 04 47

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9/03 TI-EA3  
Power KW : 420.0

## TEST BENCH REQUIREMENTS

Inlet Line : 3.1  
  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
  
Overflow valve : 1 417 413 047  
  
Inlet press. bar : 2.0  
Tolerance bar : ± 0.1  
  
Test nozzle holder  
assembly : 1 688 901 105  
  
Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5  
  
Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
  
Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
  
Rack travel in mm : 10.50  
Tolerance mm : ± 1.50  
  
Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4  
  
Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050  
  
Rack travel in mm : 12.65  
Tolerance mm : ± 0.05  
  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0  
  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0  
  
Speed

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 30.0

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.27  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.11  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 755  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 480  
guide sleeve  
travel mm : 3.75  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1330  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1182

Rack travel in mm : 12.48  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure

hPa : 1600

Del. quantity  
cm3/1000 strokes : 295.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  4.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.65

Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1200

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1300

##### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 300

CRT mm min. : > 6.00

#### Testing:

Rated speed rpm : 350  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1050  
Pressure hPa : 1600  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
Pressure hPa : -  
rack travel mm : 8.30  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1050

Pressure hPa : 1050  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 700  
rack travel mm : 9.50

Tolerance mm :  $\pm$  0.20

---

#### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 270

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 290

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 276.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

##### Aneroid pressure

hPa : 1600  
Rated speed rpm : 800  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 209.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 150.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.09.97  
Test oil : ISO 4113

Combination No. : 0 402 648 967

Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877

Governor  
Governor design. : RQV300...1050PA1078  
: -1K  
Governor no. : 0 421 815 361

Cust. part No. : 9275447

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI  
Power KW : 400.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 075

Outside diameter : 8.0  
x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1050

Rack travel in mm : 12.75  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed



Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm : ± 0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm : ± 0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm : ± 0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm : ± 0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm : ± 0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66

Tolerance mm : ± 0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm : ± 2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 11.75  
Rated speed rpm : 1110  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1300

---

## LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  6.60

### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

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## TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 550  
Pressure hPa : 1600  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.15

Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 675  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 575  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.15

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## FUEL DELIVERY CHARACTERISTICS

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Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 350  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

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End of test specification sheet

## Note remarks

Edition : 26.09.97  
Test oil : ISO 4113

Injection pump  
Pump designation : PE8P120A320LS7871  
EP type number : 0 412 628 877

Cust. part No. : 9275448

Customer-spec. information  
Customer : LIEBHERR  
Motor : D 9408 TI  
Power KW : 400.0

Inlet Line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 047

Inlet press. bar : 2.0  
Tolerance bar :  $\pm$  0.1

Test nozzle holder assembly : 1 688 901 105

Opening pressure : 208.5 bar  
Tolerance bar :  $\pm$  1.5

Test Lines : 1 680 750 075

x inside diameter : 3.0  
x length mm : 1000

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values

Test pressure bar : 26.0  
Tolerance bar :  $\pm$  1.0

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Prestroke mm      :      3.65
Tolerance mm      :  +-  0.05
Check
tolerance mm      :  +-  0.10

```

Rack travel in mm : 10.50  
Tolerance mm :  $\pm 0.50$

Firing order : 1- 8- 7- 2- 6  
: - 3- 5- 4

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance :  $\pm$  0.50  
Check  
tolerance °NW :  $\pm$  0.75

Rated speed rpm : 1050

Rack travel in mm : 12.75  
Tolerance mm :  $\pm 0.05$

Del. quantity  
cm3/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm 4.0$

**Spread**

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 350

Rack travel in mm : 5.30

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 30.0

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm3/1000 strokes : 6.0

Check tolerance  
cm3/1000S. : 10.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1117  
guide sleeve  
travel mm : 10.38  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.69  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 746  
guide sleeve  
travel mm : 6.20  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 353  
guide sleeve  
travel mm : 2.45  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 403  
guide sleeve  
travel mm : 3.18  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 450  
guide sleeve  
travel mm : 3.66

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1320  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 10.80  
Tolerance mm :  $\pm$  2.70

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1050  
Aneroid pressure  
hPa : 1600  
Del. quantity  
cm3/1000 strokes : 300.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.75  
Rated speed rpm : 1110  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1200  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

## LOW IDLE

control lever  
position degree : 70.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. :  $>$  6.60

### Testing:

Rated speed rpm : 350  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 400

---

## TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 12.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 950  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.15

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 550  
Pressure hPa : 1600  
rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 550  
Pressure hPa : -  
rack travel mm : 9.15

Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 550

Pressure hPa : 675  
rack travel mm : 10.35  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 575  
rack travel mm : 9.75  
Tolerance mm :  $\pm$  0.15

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 10.50  
Tolerance mm :  $\pm$  0.10

Aneroid pressure  
hPa : 1600  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 299.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 550  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 242.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.15  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 160.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  14.0

---

#### LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 10.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 26.09.97  
Test oil : ISO 4113

Combination No. : 0 402 676 825

Injection pump  
Pump designation : PE6P120A320RS7430  
EP type number : 0 412 626 960

Governor  
Governor design. : RSV300...850P1A614  
Governor no. : 0 421 833 502

Cust. part No. : 11031231 P06 v.08/97

## Customer-spec. information

Customer : VCE  
Motor : TD 103 KAE  
Power KW : 190.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 300  
Tolerance l/h : ± 20.0

Test nozzle holde  
assembly : 1 688 901 103

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 500



Rack travel in mm : 12.20  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 306.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 325

Rack travel in mm : 4.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 34.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 6.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 306.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### CONTROL LEVER

control lever  
position degree : 52.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 10.80  
Rated speed rpm : 875  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 950  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

#### LOW IDLE

control lever  
position degree : 76.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 26.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 325  
 rack travel mm : 3.70  
 Tolerance mm :  $\pm$  0.10

#### Testing:

Rated speed rpm : 325  
 rack travel mm : 4.20  
 Tolerance mm :  $\pm$  0.10  
  
 rack travel mm : 2.00  
 Rated speed rpm : 420  
 Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 500  
 rack travel mm : 12.20  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
 rack travel mm : 11.80  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 570  
 rack travel mm : 12.00  
 Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
 rack travel mm : 12.50  
 Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
 Pressure hPa : 1500  
 rack travel mm : 12.20  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : 9.35  
 Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
  
 Pressure hPa : 575  
 rack travel mm : 2.35  
 Tolerance mm :  $\pm$  0.20

Pressure hPa : 180  
 rack travel mm : 0.25  
 Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 264.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 10.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 14.0

rack travel mm : 12.00  
 Tolerance mm :  $\pm$  0.10

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 700  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 198.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### LOW IDLE

Rated speed rpm : 325  
  
 Rack travel in mm : 4.20  
 Tolerance mm :  $\pm$  0.10  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 34.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0  
 Speed  
 Tolerance  
 cm<sup>3</sup>/1000 strokes : 5.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 25.09.97

Test oil : ISO 4113

Combination No. : 0 402 576 327

Injection pump

Pump designation : PE6P110A320RS7408

EP type number : 0 412 616 800

Governor

Governer design. : RSV300...850P1A623

Governer no. : 0 421 833 530

Cust. part No. : 11030178 P04 v.08/97

## Customer-spec. information

Customer : VCE

Motor : TD 73 KHE

Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 210

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 101

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 9.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 3.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 6.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### CONTROL LEVER

control lever  
position degree : 52.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 104.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 8.90

Rated speed rpm : 895  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 955  
Tolerance 1/min :  $\pm$  10

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

#### LOW IDLE

control lever  
position degree : 80.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 30.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 3.00  
Tolerance mm :  $\pm$  0.10

#### Testing:

Rated speed rpm : 300  
rack travel mm : 3.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 385  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.05

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 6.80  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 640  
rack travel mm : 2.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 100  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm3/1000 strokes : 115.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0

#### LOW IDLE

Rated speed rpm : 300

Rack travel in mm : 3.50  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 26.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0

Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.09.97

Test oil : ISO 4113

Combination No. : 0 402 676 834

## Injection pump

Pump designation : PE6P110A320RS7429

EP type number : 0 412 616 801

## Governor

Governor design. : RSV300...850P1A623

Governor no. : 0 421 833 530

Cust. part No. : 11030715 P04 v.08.97

## Customer-spec. information

Customer : VCE

Motor : TD 73 KHE

Power KW : 155.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 078

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 210

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 101

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 11.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.20  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

Rated speed rpm : 300

Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 5.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 181.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

##### CONTROL LEVER

control lever  
position degree : 47.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 97.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 12.20  
Rated speed rpm : 895  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 960  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1100

rack travel mm : 4.00  
Rated speed rpm : 980  
Tolerance 1/min :  $\pm$  15

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 23.0



tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 300  
rack travel mm : 4.90  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100  
CRT mm min. :  $>$  9.40

Testing:

Rated speed rpm : 300  
rack travel mm : 5.40  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 455  
Tolerance 1/min :  $\pm$  30

---

TOPQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 13.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 3.20  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 100  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 115.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  0

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.09.97  
Test oil : ISO 4113  
Combination No. : 0 402 746 995  
Injection pump  
Pump designation : PES6P120A320RS7343  
EP type number : 0 412 726 915  
Governor  
Governor design. : RQV300...1000PA1160K  
Governor no. : 0 421 815 420

Cust. part No. : CCEP 5144A 66-232

Customer-spec. information  
Customer : RENAULT V.I.  
Motor : MIDR 062356 A/41  
Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 071

Inlet press. bar : 2.5

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.50  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 11.00  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

°NW after s.o.d. : -0.40  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

Beginning of delivery difference

betw. rack trav.  
mm : 21.00  
and maximum rack  
travel : 11.00  
Difference ° CS : 2.25

## CRT ZERO POSITION

Rack travel in mm : 12.80  
Tolerance mm :  $\pm$  0.05

---

#### BASIC SETTING

Rated speed rpm : 1000

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 300

Rack travel in mm : -7.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1103  
guide sleeve  
travel mm : 8.70  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.32

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 823  
guide sleeve  
travel mm : 5.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 405  
guide sleeve  
travel mm : 2.43  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 455  
guide sleeve  
travel mm : 2.98  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.66  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1440  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1300

Rack travel in mm : 11.60  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 350.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : -1.00  
Rated speed rpm : 1100  
Tolerance 1/min :  $\pm$  5

rack travel mm : -8.80  
Rated speed rpm : 1210  
Tolerance 1/min :  $\pm$  15

rack travel mm : -12.30  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

#### Testing:

Rated speed rpm : 300  
rack travel mm : -7.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 200

CRT mm max. :  $<$  -6.70

Rated speed rpm : 390

---

#### TORQUE CONTROL

Rated speed rpm : 1000

Rated speed rpm : 600  
rack travel mm : -0.45  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 800  
rack travel mm : 0.10  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
rack travel mm : -1.70  
Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1200

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : -3.90  
Tolerance mm :  $\pm$  0.30

#### MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 320  
rack travel mm : -2.80  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 520  
rack travel mm : -1.70  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  225

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  245

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1200  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 381.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

rack travel mm : 0.10  
Tolerance mm :  $\pm$  0.15

---

Aneroid pressure  
hPa : -

Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 185.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

#### LOW IDLE

Rated speed rpm : 300  
  
Rack travel in mm : -7.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 36.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.07.98

Test oil : ISO 4113

Combination No. : E 040 101 200

## Injection pump

Pump designation : PES6A100D320/3RS3506

EP type number : 9 410 037 236

## Governor

Governer design. : RQV400...1250AB1328R

Governer no. : 0 042 096 600

Cust. part No. : TATA-CUMMINS

## Customer-spec. information

Customer : CUMMINS

Motor : 6BT - 125 ps

## TEST BENCH REQUIREMENTS

Inlet line : 1.1;

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0

Tolerance bar : ± 0.1

## Test nozzle holde assembly

: 1 688 901 101

## Opening pressure bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0

Tolerance bar : ± 1.0

Prestroke mm : 3.60

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 5.75

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 10.00

Tolerance mm : ± 0.05

Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.10

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

RATED SPEED  
rack travel mm : 9.30  
Rated speed rpm : 1300  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1490

#### LOW IDLE

##### Testing:

Rated speed rpm : 400  
rack travel mm : 6.40  
Tolerance mm :  $\pm$  0.10

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 10.00  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 550  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 750  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.15

#### Start interlock

Rated speed rpm :  $>$  170  
Rated speed rpm :  $>$  300

Check  
speed 1/min :  $<$  190  
Check  
speed 1/min :  $<$  340

#### FUEL DELIVERY CHARACTERISTICS

rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.15

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 14.40  
Tolerance mm :  $\pm$  0.50

#### LOW IDLE

Rack travel in mm : 6.40  
Tolerance mm :  $\pm$  0.10

End of test specification sheet

**BOSCH INJ. PUMP TEST SPECIFICATIONS****Note remarks**

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 21.07.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 109

Injection pump  
Pump designation : PES6A95D120RS2916  
EP type number : F 002 A10 010

Governor  
Governor design. : RSV425...1050A0C982R  
Governor no. : F 002 A20 257

Cust. part No. : 328 4544

Customer-spec. information  
Customer : CUMMINS  
Motor : 68T  
Power KW : 105.0

**TEST BENCH REQUIREMENTS**

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

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x inside diameter : 2.0  
x length mm : 600

**REMARKS**

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 9.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

**BASIC SETTING**

Rated speed rpm : 1050

Rack travel in mm : 11.05  
Tolerance mm : ± 0.05



Del. quantity cm3/1000 strokes	: 94.3
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.0

Rated speed rpm	: 425
Rack travel in mm	: 5.05
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 18.5
Tolerance cm3/1000 strokes	: ± 2.0
Check tolerance cm3/1000S.	: ± 4.5
Spreed	
Tolerance cm3/1000 strokes	: 6.0
Check tolerance cm3/1000S.	: 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever position degree	: FREE
Rated speed rpm	: 800
Rack travel in mm	: 0.50
Tolerance mm	: ± 0.20
governor spring pre-tension click setting x	: 2.25

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 1050
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K08

Aneroid pressure hPa	: 900
Del. quantity cm3/1000 strokes	: 94.3
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 3.0
Spreed	
Tolerance cm3/1000 strokes	: 4.0
Check tolerance cm3/1000S.	: 6.0

#### CONTROL LEVER

control lever position degree	: 95.0
tolerance degree	: ± 4.0

#### RATED SPEED

rack travel mm	: 10.05
Rated speed rpm	: 1120
Tolerance 1/min	: ± 5

rack travel mm	: 4.50
Rated speed rpm	: 1175
Tolerance 1/min	: ± 5

rack travel mm	: 0.85
Tolerance mm	: ± 0.55
Rated speed rpm	: 1300

rack travel mm	: 4.50
Rated speed rpm	: 1175
Tolerance 1/min	: ± 15

#### LOW IDLE

control lever position degree	: 76.0
tolerance degree	: ± 4.0

Control lever difference Grad	: 19.0
tolerance degree	: ± 6.0

#### Setting point w/out bumper spring

Rated speed rpm	: 425
rack travel mm	: 4.05
Tolerance mm	: ± 0.10

Rated speed rpm	: 100
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CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 425  
rack travel mm : 5.05  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 560  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1050  
rack travel mm : 11.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 800  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 650  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 400  
rack travel mm : 10.60  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 800  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 105.0

K09

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

#### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.1  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

#### LOW IDLE

Rated speed rpm : 425  
Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 16.07.98

Test oil : ISO 4113

Combination No. : 0 402 040 700

Injection pump

Pump designation : PES12P120A920RS3335

EP type number : 0 412 020 701

Governor

Governor design. : RQV350...1400PA1145

Governor no. : 0 421 814 092

Cust. part No. :

Customer-spec. information

Customer : FINCANTIERI

Motor : 1312 T2

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Test nozzle holde  
assembly

: 1 688 901 105

Opening pressure  
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

K10

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 3.55

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1-12- 9- 4- 5

: - 8- 11- 2- 3

: - 10- 7- 6

Phasing : 0-45-60-105-120

: -165-180-225-240

: -285-300-345

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 15.30

Tolerance mm : ± 0.05

Del. quantity

cm<sup>3</sup>/1000 strokes : 288.0

Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance

cm<sup>3</sup>/1000s. : ± 4.0

Spread

Tolerance  
cm3/1000 strokes : 7.0

Check tolerance  
cm3/1000S. : 11.0

Rated speed rpm : 350

Rack travel in mm : 8.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 39.0

Tolerance  
cm3/1000 strokes :  $\pm$  3.0

Check tolerance  
cm3/1000S. :  $\pm$  6.0

Speed  
Tolerance  
cm3/1000 strokes : 10.0

Check tolerance  
cm3/1000S. : 14.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1415  
guide sleeve  
travel mm : 8.40  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 1.63  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 910  
guide sleeve  
travel mm : 5.33  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 394  
guide sleeve  
travel mm : 2.38  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 444  
guide sleeve  
travel mm : 2.95  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 3.49  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1740  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1490

Rack travel in mm : 14.30  
Tolerance mm :  $\pm$  1.30

##### CONTROL LEVER

control lever  
position degree : 117.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 14.30  
Rated speed rpm : 1395  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1630  
Tolerance 1/min :  $\pm$  15

rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.70  
Rated speed rpm : 1750

##### LOW IDLE

control lever  
position degree : 73.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250

CRT mm min. : > 9.60

Testing:

Rated speed rpm : 350  
rack travel mm : 8.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 525

---

TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1350  
rack travel mm : 15.30  
Tolerance mm :  $\pm$  0.15

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500  
Pressure hPa : 1000  
rack travel mm : 15.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 400  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 500  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.05

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 1350  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 278.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 139.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

ESS test: With 24 V solenoid activated,  
rack must reach start position in max.  
control lever setting.

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 420.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  15.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  19.0

---

LOW IDLE

Rated speed rpm : 350  
  
Rack travel in mm : 8.10  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 39.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98  
Test oil : ISO 4113  
Combination No. : 0 402 046 883  
Injection pump  
Pump designation : PES6P120A1320/5LS339  
: 9  
EP type number : 0 412 026 808  
Governor  
Governor design. : RQ750PA1387  
Governor no. : 0 421 801 834  
Cust. part No. : 1409259

Customer-spec. information  
Customer : SCANIA  
Motor : DSC12 40A

## TEST BENCH REQUIREMENTS

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 4- 2- 6- 3-  
: 5

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 6

## BASIC SETTING

Rated speed rpm : 700

Tolerance mm : ± 0.05

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Tolerance mm : ± 0.10

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

FULL LOAD DELIVERY AT FULL LOAD STOP

Aneroid pressure  
hPa : 1500

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

CONTROL LEVER

control lever  
position degree : 26.0  
tolerance degree : ± 4.0

control lever  
position degree : 88.0  
tolerance degree : ± 4.0

RATED SPEED

Rated speed rpm : 750  
Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 775

Tolerance 1/min : ± 15

Check  
speed 1/min : ± 20

Tolerance mm : ± 0.50

Rated speed rpm : 850

LOW IDLE

Setting point w/out bumper spring

CRT mm min. : > 1.50

Testing:

Rated speed rpm : 250

Tolerance mm : ± 0.10

Rated speed rpm : 300

TORQUE CONTROL

Rated speed rpm : 700

Tolerance mm : ± 0.05

Tolerance mm : ± 0.10

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 500

Pressure hPa : 1500

Tolerance mm : ± 0.05

Rated speed rpm : 500

Pressure hPa : -

Tolerance mm : ± 0.20

MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350

Tolerance mm : ± 0.15

Pressure hPa : 750

Tolerance mm : ± 0.05

---

## FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 8.0

---

## LOW IDLE

Tolerance mm : ± 0.10  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.07.98  
Test oil : ISO 4113

Combination No. : 0 402 076 822

Injection pump  
Pump designation : PES6P110A320RS3400  
EP type number : 0 412 016 759

Governor  
Governor design. : RSV300...1000P1A695  
Governor no. : 0 421 833 618

Cust. part No. : 11032943 v. 25.02.98

Customer-spec. information  
Customer : VCE

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 077

Inlet press. bar : 2.5

Overflow quantity  
min. l/h : 150  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.45  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.30  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 300

Rack travel in mm : 9.00  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0

Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

governor spring  
pre-tension

click setting x : 4.25

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : -

K17

Del. quantity  
cm<sup>3</sup>/1000 strokes : 131.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 106.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 12.30

Rated speed rpm : 1022

Tolerance 1/min : ± 5

rack travel mm : 4.00

Rated speed rpm : 1075

Tolerance 1/min : ± 10

rack travel mm : 0.85

Tolerance mm : ± 0.55

Rated speed rpm : 1150

##### LOW IDLE

control lever  
position degree : 77.0

tolerance degree : ± 4.0

##### Testing:

Rated speed rpm : 300

rack travel mm : 9.00

Tolerance mm : ± 0.10

rack travel mm : 2.00

Rated speed rpm : 370

Tolerance 1/min : ± 30

##### SET IDLE AUXILIARY SPRING

rack travel mm : 2.00

Tolerance mm : ± 2.00

##### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.30  
Tolerance mm :  $\pm 0.05$

---

ANEROID/ALTITUDE  
COMPENSATOR TEST

SETTING

Rated speed rpm : 700  
Pressure hPa : 1500  
rack travel mm : 13.30  
Tolerance mm :  $\pm 0.05$

Rated speed rpm : 700  
Pressure hPa : -  
rack travel mm : 10.90  
Tolerance mm :  $\pm 0.10$

MEASUREMENT

Rated speed rpm : 700  
Pressure hPa : 660  
rack travel mm : 2.00  
Tolerance mm :  $\pm 0.20$

Pressure hPa : 130  
rack travel mm : 0.25  
Tolerance mm :  $\pm 0.10$

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 85.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 1.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 4.0$

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 9.00  
Tolerance mm :  $\pm 0.10$

Del. quantity  
cm<sup>3</sup>/1000 strokes : 49.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm 2.0$   
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm 5.0$   
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 11.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 21.07.98

Test oil : ISO 4113

Combination No. : 0 402 630 814

## Injection pump

Pump designation : PE12P130A120LS7338

EP type number : 0 412 630 805

## Governor

Governer design. : RQV300...825PA1152

Governer no. : 0 421 814 095

Cust. part No. : 4.030.377.3

## Customer spec. information

Customer : SACM

Motor : UD25.V12

Power KW : 1050.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1; 3.2

## Test oil inlet

temp. °C : 43

Tolerance °C : ± 2.5

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

## Test nozzle holde

assembly : 0 681 443 022

## Opening pressure

bar : 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 060

Outside diameter : 8.0

x inside diameter : 4.0

x length mm : 1000

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.85

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 8- 5- 10- 3

: - 7- 6- 11

: - 2- 9- 4

: - 12

Phasing : 0-37.5-60-97.5-120

: -157.5-180-217.5

: -240-277.5-300

: -337.5

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 825

Rack travel in mm : 12.00  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 450.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0

Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

Rated speed rpm : 300

Rack travel in mm : 5.00  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 60.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 10.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 890  
guide sleeve  
travel mm : 7.85  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 300  
guide sleeve  
travel mm : 1.84  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 339  
guide sleeve  
travel mm : 2.61  
Tolerance mm :  $\pm$  0.25

K20

Rated speed rpm : 389  
guide sleeve  
travel mm : 3.29  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 620  
guide sleeve  
travel mm : 4.83  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1130  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 980

Rack travel in mm : 10.00  
Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 825  
Aneroid pressure  
hPa : -  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 450.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

##### CONTROL LEVER

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.00  
Rated speed rpm : 875  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 950

Tolerance 1/min : + 15  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1060

---

LOW IDLE

control lever  
position degree : 70.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 200  
CRT mm min. : > 7.70

Testing:

Rated speed rpm : 300  
rack travel mm : 5.00  
Tolerance mm : + 0.10

Rated speed rpm : 400

---

TORQUE CONTROL

Rated speed rpm : 825  
rack travel mm : 12.00  
Tolerance mm : + 0.05

---

Start interlock

Rated speed rpm : > 100  
Rated speed rpm : > 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : > 240

---

LOW IDLE

Rated speed rpm : 300  
Rack travel in mm : 5.00  
Tolerance mm : + 0.10

K21

Del. quantity  
cm3/1000 strokes : 60.0  
Tolerance  
cm3/1000 strokes : + 3.0  
Check tolerance  
cm3/1000s. : + 7.0  
Spreed  
Tolerance  
cm3/1000 strokes : 10.0  
Check tolerance  
cm3/1000s. : 14.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 20.07.98

Test oil : ISO 4113

Combination No. : 0 402 646 664

## Injection pump

Pump designation : PE6P120A320LS7401

EP type number : 0 412 626 950

## Governor

Governor design. : RQV325...1000PA1256K

Governor no. : 0 421 815 493

Cust. part No. :

## Customer-spec. information

Customer : LIAZ

Motor : ML636E

Power KW : 175.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

## Test nozzle holder assembly

: 1 688 901 105

## Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.80

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 12.00

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 13.80

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 215.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

## Check tolerance

cm<sup>3</sup>/1000S. : ± 4.0

## Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057  
guide sleeve  
travel mm : 9.78  
Tolerance mm : ± 0.15

Rated speed rpm : 325  
guide sleeve  
travel mm : 1.47  
Tolerance mm : ± 0.20

Rated speed rpm : 831  
guide sleeve  
travel mm : 6.95  
Tolerance mm : ± 0.25

Rated speed rpm : 550  
guide sleeve  
travel mm : 3.76  
Tolerance mm : ± 0.25

Rated speed rpm : 1290  
guide sleeve  
travel mm : 13.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1140

Rack travel in mm : 12.80  
Tolerance mm : ± 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 215.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 65.0  
tolerance degree : ± 4.0

control lever  
position degree : 119.0  
tolerance degree : ± 4.0

RATED SPEED  
rack travel mm : 12.80  
Rated speed rpm : 1045  
Tolerance 1/min : ± 5

rack travel mm : 4.00  
Rated speed rpm : 1145  
Tolerance 1/min : ± 15

rack travel mm : 0.50  
Tolerance mm : ± 0.50  
Rated speed rpm : 1200

##### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree : ± 4.0



control lever  
position degree : 15.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 225

CRT mm min. :  $>$  6.00

Testing:

Rated speed rpm : 325  
rack travel mm : 4.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 350

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.45  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 600  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.20

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 1000  
Pressure hPa : 1500  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
Pressure hPa : -  
rack travel mm : 11.15  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 1000

Pressure hPa : 260  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 370  
rack travel mm : 13.20

K24

Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  255

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  265

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 230.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.20

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 191.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 325

Rack travel in mm : 4.40  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 38.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 22.07.98

Test oil : ISO 4113

Combination No. : 0 402 646 667

Injection pump

Pump designation : PE6P120A320RS7412

EP type number : 0 412 626 953

Governor

Governer design. : RQV275...1000PA1278K

Governer no. : 0 421 815 509

Cust. part No. : 1310221/1

## Customer-spec. information

Customer : DAF

Motor : XF 315 M

Power KW : 315.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 140

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 980

Rack travel in mm : 13.40

Tolerance mm : ± 0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

---

Speed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

Rated speed rpm : 275

Rack travel in mm : 5.30

Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1077

guide sleeve  
travel mm : 10.24

Tolerance mm : + 0.15

Rated speed rpm : 275

guide sleeve  
travel mm : 2.04

Tolerance mm : + 0.20

Rated speed rpm : 704

guide sleeve  
travel mm : 6.53

Tolerance mm : + 0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92

Tolerance mm : + 0.25

Rated speed rpm : 1310

guide sleeve  
travel mm : 13.50

Tolerance mm : + 0.50

---

##### GUIDE SLEEVE POSITION

control lever

position degree : - 1

Rated speed rpm : 1158

Rack travel in mm : 12.00

Tolerance mm : + 2.70

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 980

Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 318.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 4.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

##### CONTROL LEVER

control lever

position degree : 119.0

tolerance degree : + 4.0

---

##### RATED SPEED

rack travel mm : 12.40

Rated speed rpm : 1040

Tolerance 1/min : + 5

Check  
speed 1/min : + 10

rack travel mm : 4.00

Rated speed rpm : 1145

Tolerance 1/min : + 15

Check  
speed 1/min : + 20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175  
CRT mm min. :  $>$  8.00

#### Testing:

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 980  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 13.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 12.55  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 12.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1000  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 980  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 980  
Pressure hPa : 1500  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
Pressure hPa : -  
rack travel mm : 8.55  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 980

Pressure hPa : 520  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 210  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.15

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 342.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  4.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275  
Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 13.5  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 8.0  
Check tolerance  
cm3/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 22.07.98

Test oil : ISO 4113

Combination No. : 0 402 646 668

## Injection pump

Pump designation : PE6P120A320RS7412

EP type number : 0 412 626 953

## Governor

Governer design. : RQV275...1000PA1278

: -1K

Governer no. : 0 421 815 510

Cust. part No. : 1310220/1

## Customer-spec. information

Customer : DAF

Motor : XF 280 M

Power KW : 280.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 000

Inlet press. bar : 1.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 145

Tolerance l/h : ± 20.0

Test nozzle holde

assembly : 1 688 901 105

Opening pressure

bar : 208.5

Tolerance bar : ± 1.5

L02

Test lines : 1 680 750 089

Outside diameter : 8.0

x inside diameter : 3.0

x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 15.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.10

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 750

Rack travel in mm : 12.60

Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

Rated speed rpm : 275

Rack travel in mm : 5.30  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 13.5

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1062  
guide sleeve  
travel mm : 10.04  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 275  
guide sleeve  
travel mm : 2.04  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 697  
guide sleeve  
travel mm : 6.48  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 400

guide sleeve  
travel mm : 3.92  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1171

Rack travel in mm : 10.70  
Tolerance mm :  $\pm$  2.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 750  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 303.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.35

Rated speed rpm : 1050  
Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1150

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50



Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1275

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 175

CRT mm min. :  $>$  7.80

Testing:

Rated speed rpm : 275  
rack travel mm : 5.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 750  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
rack travel mm : 12.35  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 900  
rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 700  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 600  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 12.65  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 775  
Pressure hPa : -  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 775

Pressure hPa : 450  
rack travel mm : 12.10  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 170  
rack travel mm : 9.90  
Tolerance mm :  $\pm$  0.10

---

#### FUEL DELIVERY CHARACTERISTICS

---

##### Aneroid pressure

hPa : 1500  
Rated speed rpm : 980  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

rack travel mm : 12.60  
Tolerance mm :  $\pm$  0.10

---

##### Aneroid pressure

hPa : -  
Rated speed rpm : 600  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 184.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

LOW IDLE

Rated speed rpm : 275

Rack travel in mm : 5.30

Tolerance mm :  $\pm$  0.10

Del. quantity

cm<sup>3</sup>/1000 strokes : 13.5

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance

cm<sup>3</sup>/1000S. : 12.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 21.07.98

Test oil : ISO 4113

Combination No. : 0 402 648 603

## Injection pump

Pump designation : PE8P120A720LS7427T

EP type number : 0 412 628 919

## Governor

Governer design. : RQ750PA1227-1

Governer no. : 0 421 801 812

Cust. part No. : 1391886

## Customer-spec. information

Customer : SCANIA

Motor : DSI(C)14...A,M

## TEST BENCH REQUIREMENTS

Inlet line : 4.1

## Vibration damper

(RoBo diaphragm) : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Test nozzle holder assembly

: 1 688 901 104

## Opening pressure bar

: 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.45

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1-2A- 7- 3A- 4  
: - 5A- 6

Phasing : 0-45-90-135-180  
: -225-270-315

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 16.45

Tolerance mm : ± 0.05

Del. quantity cm3/1000 strokes	: 324.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 10.0
Speed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

Rack travel in mm	: 6.50
Tolerance mm	: ± 0.10
Del. quantity cm3/1000 strokes	: 38.0
Tolerance cm3/1000 strokes	: ± 4.0
Check tolerance cm3/1000S.	: ± 6.0
Speed	
Tolerance cm3/1000 strokes	: 5.0
Check tolerance cm3/1000S.	: 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm guide sleeve travel mm	: 759
Tolerance mm	: ± 0.15
Rated speed rpm guide sleeve travel mm	: 797
Tolerance mm	: ± 0.25
Rated speed rpm guide sleeve travel mm	: 850
Tolerance mm	: ± 0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm	: 700
Aneroid pressure hPa	: 1500
Del. quantity cm3/1000 strokes	: 324.0
Tolerance cm3/1000 strokes	: ± 1.0
Check tolerance cm3/1000S.	: ± 10.0
Speed	
Tolerance cm3/1000 strokes	: 8.0
Check tolerance cm3/1000S.	: 12.0

##### CONTROL LEVER

control lever position degree	: 28.0
tolerance degree	: ± 4.0
control lever position degree	: 89.0
tolerance degree	: ± 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm	: 750
rack travel mm	: 15.50
Rated speed rpm	: 785
Tolerance 1/min	: ± 4
rack travel mm	: 4.00
rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 850

Rated speed rpm	: 751
rack travel mm	: 15.50

Rated speed rpm	: 786
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

rack travel mm	: 0.50
Tolerance mm	: ± 0.50
Rated speed rpm	: 850

Rated speed rpm	: 752
rack travel mm	: 15.50

Rated speed rpm	: 787
Tolerance 1/min	: ± 4
rack travel mm	: 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 850

Rated speed rpm : 753  
rack travel mm : 15.50

Rated speed rpm : 788  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 850

Rated speed rpm : 754  
rack travel mm : 15.50

Rated speed rpm : 789  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 850

Rated speed rpm : 755  
rack travel mm : 15.50

Rated speed rpm : 790  
Tolerance 1/min :  $\pm$  4  
rack travel mm : 4.00

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 850

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 16.45  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 16.45  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 420  
rack travel mm : 13.60  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 680  
rack travel mm : 15.05  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 221.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  7.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 12.50  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 180.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  24.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 16.07.98  
Test oil : ISO 4113

Combination No. : 0 402 648 817

Injection pump  
Pump designation : PE8P120A320LS7801  
: -10  
EP type number : 0 412 628 851

Governor  
Governor design. : RQ300/1050PA762-16  
Governor no. : 0 421 801 620

Cust. part No. :

Customer-spec. information  
Customer : MB-NFZ  
Motor : OM442 A  
Power KW : 269.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 105

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

L09

Test Lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 2.5  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 8- 7- 2- 6- 3  
: - 5- 4- 1

Phasing : 0-45-90-135-180  
: -225-270-315  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Del. quantity  
cm<sup>3</sup>/1000 strokes : 205.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : +- 4.0

---

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

Rated speed rpm : 300

Rack travel in mm : 6.20

Tolerance mm : +- 0.20

Del. quantity

cm<sup>3</sup>/1000 strokes : 16.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 3.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 6.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance

cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE TRAVEL

Rated speed rpm : 1050

guide sleeve

travel mm : 6.80

Tolerance mm : +- 0.10

Rated speed rpm : 300

guide sleeve

travel mm : 2.30

Tolerance mm : +- 0.10

guide sleeve

travel mm : 6.00

Tolerance mm : +- 0.10

Rated speed rpm : 870

guide sleeve

travel mm : 6.20

Tolerance mm : +- 0.10

Rated speed rpm : 1170

guide sleeve

travel mm : 9.50

Tolerance mm : +- 0.30

L10

---

GUIDE SLEEVE POSITION

control lever

position degree : 109

Rated speed rpm : 600

Rack travel in mm : 20.00

Tolerance mm : +- 0.80

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 500

Aneroid pressure

hPa : 1050

Del. quantity

cm<sup>3</sup>/1000 strokes : 205.0

Tolerance

cm<sup>3</sup>/1000 strokes : +- 1.0

Check tolerance

cm<sup>3</sup>/1000S. : +- 4.0

Speed

Tolerance

cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance

cm<sup>3</sup>/1000S. : 7.0

---

CONTROL LEVER

control lever

position degree : 97.0

tolerance degree : +- 4.0

RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1103

Tolerance 1/min : +- 8

rack travel mm : 4.00

Rated speed rpm : 1185

Tolerance 1/min : +- 15

rack travel mm : 0.75

Tolerance mm : +- 0.75

Rated speed rpm : 1300

---

LOW IDLE

control lever

position degree : 74.0

tolerance degree : +- 4.0

Setting point w/out bumper spring

Rated speed rpm : 200

CRT mm min. : > 8.00

Testing:

Rated speed rpm : 300  
rack travel mm : 6.20  
Tolerance mm :  $\pm$  0.20

rack travel mm : 2.00  
Rated speed rpm : 400  
Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Dimension a mm : 0.75

Rated speed rpm : 1050  
rack travel mm : 12.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 600  
Pressure hPa : -

Rated speed rpm : 600  
Pressure hPa : 300  
rack travel mm : 1.00  
Tolerance mm :  $\pm$  0.10

##### MEASUREMENT

Rated speed rpm : 600

Pressure hPa : 400  
rack travel mm : 2.05  
Tolerance mm :  $\pm$  0.15

---

##### Start interlock

Rated speed rpm : > 100  
Rated speed rpm : < 220

Check  
speed 1/min : > 80  
Check  
speed 1/min : < 240

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1050  
Rated speed rpm : 1050  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 179.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

rack travel mm : 14.10  
Tolerance mm :  $\pm$  0.10

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 147.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 7.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 10.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 182.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.5

---

#### LOW IDLE



Rated speed rpm : 300  
Rack travel in mm : 6.20  
Tolerance mm :  $\pm$  0.20  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98  
Test oil : ISO 4113

Combination No. : 0 402 946 014

Injection pump  
Pump designation : PES6P120A720LS8037  
EP type number : 0 412 926 024

Governor  
Governor design. : RQV250...105QPA1236K  
Governor no. : 0 421 815 970

Cust. part No. : 1370101

Customer-spec. information  
Customer : SCANIA  
Motor : DSC1202

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 85  
Tolerance l/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Start of delivery blocking

°NW after s.o.d. : 180.00  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 775

---

Rack travel in mm : 14.05  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 330.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### Spreed

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Rated speed rpm : 250

Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.30

Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1116  
guide sleeve  
travel mm : 10.09  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.79  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 644  
guide sleeve  
travel mm : 4.47

Tolerance mm :  $\pm$  0.25

Rated speed rpm : 290  
guide sleeve  
travel mm : 2.62  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1310  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1170

Rack travel in mm : 12.10  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 775  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 330.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

#### Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

##### CONTROL LEVER

control lever  
position degree : 63.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 121.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 12.10  
Rated speed rpm : 1095

Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1180  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 75.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. :  $>$  7.30

#### Testing:

Rated speed rpm : 250  
rack travel mm : 4.60  
Tolerance mm :  $\pm$  0.30

Rated speed rpm : 275

---

#### TORQUE CONTROL

Rated speed rpm : 775  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 650  
rack travel mm : 13.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 13.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 675  
rack travel mm : 13.30  
Tolerance mm :  $\pm$  0.30

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 775  
Pressure hPa : 1500  
rack travel mm : 14.05  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 775  
Pressure hPa :  $\pm$   
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 775  
Pressure hPa : 300  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 610  
rack travel mm : 11.50  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  170

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  190

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 650  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 319.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  10.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1050  
rack travel mm : 13.10

Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 272.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 675  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 323.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 192.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Set starting CRT at K-cam.

Rated speed rpm : 100  
rack travel mm : 10.70  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 4.60  
Tolerance mm :  $\pm$  0.30  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 19.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

L16

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98

Test oil : ISO 4113

Combination No. : 0 402 946 015

## Injection pump

Pump designation : PES6P120A320RS8038

EP type number : 0 412 926 025

## Governor

Governer design. : RQV250...1000PA1239

Governer no. : 0 421 814 157

Cust. part No. : 1383795

## Customer-spec. information

Customer : SCANIA

Motor : DSC 513

## TEST BENCH REQUIREMENTS

Inlet line : EHPB

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 105

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 104

## Opening pressure bar

: 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1058  
guide sleeve  
travel mm : 7.89  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 748  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure

hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.90

Rated speed rpm : 1045

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1235

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

---

## LOW IDLE

control lever  
position degree : 89.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 25.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.80

## Testing:

Rated speed rpm : 250  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

## TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

## SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.20

## MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 11.15

Tolerance mm :  $\pm$  0.15

Pressure hPa : 750  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

---

## Start interlock

Rated speed rpm :  $<$  190  
Rated speed rpm :  $>$  150

Check  
speed 1/min :  $<$  210  
Check  
speed 1/min :  $>$  130

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 190.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

## LOW IDLE



Rated speed rpm : 250  
Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98

Test oil : ISO 4113

Combination No. : 0 402 946 016

## Injection pump

Pump designation : PES6P120A320RS8038

EP type number : 0 412 926 025

## Governor

Governor design. : RQV250...1000PA1239

: -1

Governor no. : 0 421 814 158

Cust. part No. : 1369528

## Customer-spec. information

Customer : SCANIA

Motor : DSC 912

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 110

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 104

## Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50

Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.70  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057  
guide sleeve  
travel mm : 7.89  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 748  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
kPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.70  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1235  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

## LOW IDLE

control lever  
position degree : 89.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 25.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.70

### Testing:

Rated speed rpm : 250  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

## TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.70  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250  
rack travel mm : 11.30

L23

Tolerance mm :  $\pm$  0.15

Pressure hPa : 620  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

---

### Start interlock

Rated speed rpm :  $>$  150  
Rated speed rpm :  $<$  190

Check  
speed 1/min :  $>$  130  
Check  
speed 1/min :  $<$  210

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 288.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

## STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

## LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 7.60

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed  
Tolerance

cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98  
Test oil : ISO 4113

Combination No. : 0 402 946 017

Injection pump  
Pump designation : PES6P120A720RS8039  
EP type number : 0 412 926 026

Governor  
Governor design. : RQV250...950PA1243  
Governor no. : 0 421 814 162

Cust. part No. : 1374808

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11.79

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 115  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.15  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

Rated speed rpm : 250

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1008  
guide sleeve  
travel mm : 8.61  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 732  
guide sleeve  
travel mm : 6.35  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1260  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1165

Rack travel in mm : 10.90  
Tolerance mm :  $\pm$  1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 298.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

##### CONTROL LEVER

control lever  
position degree : 55.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.90  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10  
rack travel mm : 4.00

Rated speed rpm : 1115  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1200

---

#### LOW IDLE

control lever  
position degree : 81.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. :  $>$  7.90

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : -  
rack travel mm : 9.20  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 350  
rack travel mm : 10.30  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 600  
rack travel mm : 11.40  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  170

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  190

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 282.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 197.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50



Del. quantity  
cm<sup>3</sup>/1000 strokes : 225.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 5.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 21.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98  
Test oil : ISO 4113

Combination No. : 0 402 946 018

Injection pump  
Pump designation : PES6P120A72ORS8041  
EP type number : 0 412 926 027

Governor  
Governor design. : RQV250...950PA1253  
Governor no. : 0 421 814 166

Cust. part No. : 1383215

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 11.75

## TEST BENCH REQUIREMENTS

Inlet Line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. L/h : 110  
Tolerance L/h : ± 10.0

Test nozzle holde  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.40  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 11.20  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

Rated speed rpm : 250

Rack travel in mm : 5.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1006  
guide sleeve  
travel mm : 7.25  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.31  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 673  
guide sleeve  
travel mm : 4.96  
Tolerance mm :  $\pm$  0.25

MO2

Rated speed rpm : 420  
guide sleeve  
travel mm : 3.37  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1390  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1235

Rack travel in mm : 10.20  
Tolerance mm :  $\pm$  1.30

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 261.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 14.0

---

##### CONTROL LEVER

control lever  
position degree : 59.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 112.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.20  
Rated speed rpm : 995  
Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1130  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1250

---

#### LOW IDLE

control lever  
position degree : 66.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 12.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150  
CRT mm min. :  $>$  7.00

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 950  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

M03

Pressure hPa : -  
rack travel mm : 8.20  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 290  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 540  
rack travel mm : 10.40  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
Rated speed rpm :  $<$  170

Check  
speed 1/min :  $>$  80  
Check  
speed 1/min :  $<$  190

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 950  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 245.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 153.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50

Del. quantity  
cm<sup>3</sup>/1000 strokes : 170.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 20.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 24.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 5.60  
Tolerance mm : ± 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 16.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : ± 3.0  
Check tolerance  
cm<sup>3</sup>/1000S. : ± 6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98  
Test oil : ISO 4113  
Combination No. : 0 402 943 020  
Injection pump  
Pump designation : PES6P120A32ORS8038  
EP type number : 0 412 926 025  
Governor  
Governor design. : RQV250...1000PA1239  
: -2  
Governor no. : 0 421 814 168  
Cust. part No. : 1369545

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 9.11

## TEST BENCH REQUIREMENTS

Inlet line : EHAB  
Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0  
Overflow valve : 2 417 413 082  
Inlet press. bar : 2.5  
Tolerance bar : ± 0.1  
Overflow quantity  
min. l/h : 105  
Tolerance l/h : ± 15.0  
Test nozzle holde  
assembly : 1 688 901 104  
Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0  
Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10  
Rack travel in mm : 20.50  
Tolerance mm : ± 0.50  
Firing order : 1- 5- 3- 6- 2-  
: 4  
Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Start of delivery blocking  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75  
Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30  
Tolerance mm :  $\pm$  0.05

---

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0

---

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

---

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

---

Spread

---

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

---

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

Rated speed rpm : 250

Rack travel in mm : 7.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

---

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1057  
guide sleeve  
travel mm : 7.89  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 748  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

---

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

---

##### CONTROL LEVER

control lever  
position degree : 56.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 119.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.30  
Rated speed rpm : 1045  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

## LOW IDLE

control lever  
position degree : 89.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 24.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.80

### Testing:

Rated speed rpm : 250  
rack travel mm : 7.70  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

## TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.10

---

## ANEROID/ALTITUDE COMPENSATOR TEST

### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 10.80  
Tolerance mm :  $\pm$  0.20

### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 330  
rack travel mm : 11.20

M07

Tolerance mm :  $\pm$  0.15

Pressure hPa : 600  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.05

---

### Start interlock

Rated speed rpm :  $<$  190  
Rated speed rpm :  $>$  150

Check  
speed 1/min :  $<$  210  
Check  
speed 1/min :  $>$  130

---

## FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 278.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

---

### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 260.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

## LOW IDLE



Rated speed rpm : 250  
Rack travel in mm : 7.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98

Test oil : ISO 4113

Combination No. : 0 402 946 021

## Injection pump

Pump designation : PES6P120A320RS8038

EP type number : 0 412 926 025

## Governor

Governor design. : RQ250/1000PA1265

Governor no. : 0 421 801 800

Cust. part No. : 1380278

## Customer-spec. information

Customer : SCANIA

Motor : DSC 9.12

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 110

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 104

## Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.70  
Tolerance mm : + 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 9.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.60  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes : + 3.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 6.0

#### Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1073  
guide sleeve  
travel mm : 4.82  
Tolerance mm : + 0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm : + 0.20

Rated speed rpm : 990  
guide sleeve  
travel mm : 4.50  
Tolerance mm : + 0.10

M10

Rated speed rpm : 364  
guide sleeve  
travel mm : 3.50  
Tolerance mm : + 0.10

Rated speed rpm : 490  
guide sleeve  
travel mm : 4.50  
Tolerance mm : + 0.10

Rated speed rpm : 1146  
guide sleeve  
travel mm : 5.50  
Tolerance mm : + 0.10

Rated speed rpm : 1610  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 16.40  
Tolerance mm : + 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 292.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 9.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 47.0  
tolerance degree : + 4.0

control lever  
position degree : 107.0

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.70

Rated speed rpm : 1045

Tolerance 1/min :  $\pm$  5

Check

speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1235

Tolerance 1/min :  $\pm$  15

Check

speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

#### LOW IDLE

control lever

position degree : 87.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 25.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.50

Testing:

Rated speed rpm : 250

rack travel mm : 7.60

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 355

rack travel mm : 2.00

#### TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.70

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000

rack travel mm : 12.70

Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.70

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 10.80

Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 250

rack travel mm : 11.30

Tolerance mm :  $\pm$  0.15

Pressure hPa : 620

rack travel mm : 12.30

Tolerance mm :  $\pm$  0.05

##### Start interlock

Rated speed rpm :  $>$  150

Rated speed rpm :  $<$  190

Check

speed 1/min :  $>$  130

Check

speed 1/min :  $<$  210

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 288.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance

cm<sup>3</sup>/1000s. :  $\pm$  9.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity  
cm3/1000 strokes : 210.0  
Tolerance  
cm3/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm3/1000 strokes : 270.0  
Tolerance  
cm3/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm3/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm3/1000 strokes : 40.0  
Tolerance  
cm3/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm3/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.

See microcard(s) W400/...

Edition : 17.07.98

Test oil : ISO 4113

Combination No. : 0 402 946 022

## Injection pump

Pump designation : PES6P120A320RS8038

EP type number : 0 412 926 025

## Governor

Governer design. : RQ250/1000PA1265-1

Governer no. : 0 421 801 801

Cust. part No. : 1380280

## Customer-spec. information

Customer : SCANIA

Motor : DSC 9.11

## TEST BENCH REQUIREMENTS

Inlet line : EHA3

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 110

Tolerance l/h : ± 20.0

## Test nozzle holde assembly

: 1 688 901 104

## Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.30  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.70  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1073  
guide sleeve  
travel mm : 4.82  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 990  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 364  
guide sleeve  
travel mm : 3.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 490  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1146  
guide sleeve  
travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1610  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 16.40  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 277.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 38.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 106.0

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.30

Rated speed rpm : 1045

Tolerance 1/min :  $\pm$  5

Check

speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1225

Tolerance 1/min :  $\pm$  15

Check

speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

#### LOW IDLE

control lever

position degree : 87.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 25.0

tolerance degree :  $\pm$  4.0

Setting point w/cut bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.50

Testing:

Rated speed rpm : 250

rack travel mm : 7.70

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 355

Tolerance 1/min :  $\pm$  20

#### TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.30

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000

rack travel mm : 12.30

Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE

#### COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.30

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 10.80

Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 330

rack travel mm : 11.20

Tolerance mm :  $\pm$  0.15

Pressure hPa : 600

rack travel mm : 11.90

Tolerance mm :  $\pm$  0.05

#### Start interlock

Rated speed rpm :  $<$  190

Rated speed rpm :  $>$  150

Check

speed 1/min :  $<$  210

Check

speed 1/min :  $>$  130

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 278.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  8.0

Aneroid pressure

hPa : -

Rated speed rpm : 500



Del. quantity  
cm<sup>3</sup>/1000 strokes : 210.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 270.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
Rack travel in mm : 7.70  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 45.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98  
Test oil : ISO 4113

Combination No. : 0 402 946 023

Injection pump  
Pump designation : PES6P120A320RS8038  
EP type number : 0 412 926 025

Governor  
Governor design. : RQ250/1000PA1265-2  
Governor no. : 0 421 801 808

Cust. part No. : 1385102

Customer-spec. information  
Customer : SCANIA  
Motor : DSC 9.15

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 110  
Tolerance l/h : ± 20.0

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test Lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 4.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1060  
guide sleeve  
travel mm : 4.82  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.44  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 970  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 360  
guide sleeve  
travel mm : 3.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 490  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1134  
guide sleeve  
travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1600  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109  
Rated speed rpm : 600

Rack travel in mm : 16.40  
Tolerance mm :  $\pm$  0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  9.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 47.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 108.0

tolerance degree :  $\pm$  4.0

#### RATED SPEED

rack travel mm : 11.90

Rated speed rpm : 1045

Tolerance 1/min :  $\pm$  5

Check

speed 1/min :  $\pm$  10

rack travel mm : 4.00

Rated speed rpm : 1240

Tolerance 1/min :  $\pm$  15

Check

speed 1/min :  $\pm$  20

rack travel mm : 0.50

Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1330

#### LOW IDLE

control lever

position degree : 87.0

tolerance degree :  $\pm$  4.0

control lever

position degree : 25.0

tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.50

Testing:

Rated speed rpm : 250

rack travel mm : 7.60

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 355

Tolerance 1/min :  $\pm$  20

#### TORQUE CONTROL

Rated speed rpm : 600

rack travel mm : 12.90

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000

rack travel mm : 12.90

Tolerance mm :  $\pm$  0.10

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500

Pressure hPa : 1500

rack travel mm : 12.90

Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500

Pressure hPa : -

rack travel mm : 9.80

Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 325

rack travel mm : 10.55

Tolerance mm :  $\pm$  0.15

Pressure hPa : 760

rack travel mm : 12.15

Tolerance mm :  $\pm$  0.05

##### Start interlock

Rated speed rpm :  $<$  190

Rated speed rpm :  $>$  150

Check

speed 1/min :  $<$  210

Check

speed 1/min :  $>$  130

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure

hPa : 1500

Rated speed rpm : 1000

Del. quantity

cm<sup>3</sup>/1000 strokes : 295.0

Tolerance

cm<sup>3</sup>/1000 strokes :  $\pm$  4.0

Check tolerance

cm<sup>3</sup>/1000S. :  $\pm$  9.0

Aneroid pressure

hPa : -

Rated speed rpm : 500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 250  
  
Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

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End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98

Test oil : ISO 4113

Combination No. : 0 402 946 025

## Injection pump

Pump designation : PES6P120A32ORS8038

EP type number : 0 412 926 025

## Governor

Governer design. : RQV250...1000PA1239

: -3

Governer no. : 0 421 814 178

Cust. part No. : 1383494

## Customer-spec. information

Customer : SCANIA

Motor : DSC 915

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

## Overflow quantity

min. l/h : 100

Tolerance l/h : ± 20.0

## Test nozzle holde

assembly : 1 688 901 104

## Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 4.00

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 20.50

Tolerance mm : ± 0.20

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.30

## Check

tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 600

Rack travel in mm : 12.90  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 250

Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1058  
guide sleeve  
travel mm : 7.89  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.33  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 748  
guide sleeve  
travel mm : 6.17  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 470  
guide sleeve  
travel mm : 4.09  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1470  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 600  
Aneroid pressure  
hPa : 1500

Del. quantity  
cm<sup>3</sup>/1000 strokes : 300.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 57.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 120.0  
tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 11.90  
Rated speed rpm : 1045

Tolerance 1/min :  $\pm$  5

Check  
speed 1/min :  $\pm$  10

rack travel mm : 4.00  
Rated speed rpm : 1235

Tolerance 1/min :  $\pm$  15

Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50

Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 89.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 25.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT mm min. :  $>$  9.80

#### Testing:

Rated speed rpm : 250  
rack travel mm : 7.60  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 300

---

#### TORQUE CONTROL

Rated speed rpm : 600  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1500  
rack travel mm : 12.90  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.80  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
  
Pressure hPa : 325  
rack travel mm : 10.55

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Tolerance mm :  $\pm$  0.15

Pressure hPa : 760  
rack travel mm : 12.15  
Tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $<$  190  
Rated speed rpm :  $>$  170

Check  
speed 1/min :  $<$  210  
Check  
speed 1/min :  $>$  150

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 295.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  8.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 172.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 265.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE



Rated speed rpm : 250  
Rack travel in mm : 7.60  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 40.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98  
Test oil : ISO 4113

Combination No. : 0 402 946 026

Injection pump  
Pump designation : PES6P120A72ORS8045  
EP type number : 0 412 926 028

Governor  
Governor design. : RQV350...1100PA1305K  
Governor no. : 0 421 815 967

Cust. part No. : 1388631

Customer-spec. information  
Customer : SCANIA  
Motor : DSI1174M

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 082

Inlet press. bar : 3.0  
Tolerance bar : ± 0.1

Overflow quantity  
min. l/h : 80  
Tolerance l/h : ± 10.0

Test nozzle holder  
assembly : 1 688 901 104

Opening pressure  
bar : 251.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.30  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 11.75  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 350

Rack travel in mm : 4.10  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

#### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1165  
guide sleeve  
travel mm : 10.15  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 350  
guide sleeve  
travel mm : 2.00  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 755  
guide sleeve  
travel mm : 6.14  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 460  
guide sleeve  
travel mm : 4.07  
Tolerance mm :  $\pm$  0.25

Rated speed rpm : 1400  
guide sleeve  
travel mm : 13.50  
Tolerance mm :  $\pm$  0.50

#### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1250

Rack travel in mm : 10.70  
Tolerance mm :  $\pm$  2.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

#### CONTROL LEVER

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 118.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.70  
Rated speed rpm : 1145  
Tolerance 1/min :  $\pm$  5  
Check  
speed 1/min :  $\pm$  10  
rack travel mm : 4.00

Rated speed rpm : 1235  
Tolerance 1/min :  $\pm$  15  
Check  
speed 1/min :  $\pm$  20

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 71.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 17.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 250  
CRT mm min. :  $>$  6.50

Testing:

Rated speed rpm : 350  
rack travel mm : 4.10  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 275

---

#### TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 700  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 1100  
Pressure hPa : 1500  
rack travel mm : 11.75  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1100

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Pressure hPa : -  
rack travel mm : 7.10  
Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 1100

Pressure hPa : 340  
rack travel mm : 8.35  
Tolerance mm :  $\pm$  0.25

Pressure hPa : 800  
rack travel mm : 10.65  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1500  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 263.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 163.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 7.10  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 100.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  24.0

---

#### LOW IDLE

Rated speed rpm : 350

Rack travel in mm : 4.10

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and  
adjustment instructions.  
See microcard(s) W400/...

Edition : 17.07.98

Test oil : ISO 4113

Combination No. : 0 402 946 031

## Injection pump

Pump designation : PES6P120A320RS8050

EP type number : 0 412 926 032

## Governor

Governer design. : RQ250/1000PA1342

Governer no. : 0 421 801 822

Cust. part No. : 1388694

## Customer-spec. information

Customer : SCANIA

Motor : DSI 9E01

Power KW : 170.0

## TEST BENCH REQUIREMENTS

Inlet line : EHAB

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 2 417 413 095

Inlet press. bar : 2.5

Tolerance bar : ± 0.1

Overflow quantity

min. l/h : 80

Tolerance l/h : ± 10.0

Test nozzle holde

assembly : 1 688 901 104

Opening pressure

bar : 251.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 5.00

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-

: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 12.30  
Tolerance mm :  $\pm$  0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 285

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  6.0

Spread

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1061  
guide sleeve  
travel mm : 4.72  
Tolerance mm :  $\pm$  0.15

Rated speed rpm : 285  
guide sleeve  
travel mm : 2.17  
Tolerance mm :  $\pm$  0.20

Rated speed rpm : 1000  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

NO2

Rated speed rpm : 410  
guide sleeve  
travel mm : 3.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 530  
guide sleeve  
travel mm : 4.50  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1670  
guide sleeve  
travel mm : 11.50  
Tolerance mm :  $\pm$  0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 108  
Rated speed rpm : 600

Rack travel in mm : 16.00  
Tolerance mm :  $\pm$  0.60

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 240.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  7.0  
Spread  
Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 43.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 105.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 11.30  
Rated speed rpm : 1058

Tolerance 1/min :  $\pm$  8  
 Check  
 speed 1/min :  $\pm$  10  
  
 rack travel mm : 4.00  
 Rated speed rpm : 1245  
 Tolerance 1/min :  $\pm$  15  
 Check  
 speed 1/min :  $\pm$  20  
  
 rack travel mm : 0.50  
 Tolerance mm :  $\pm$  0.50  
 Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
 position degree : 85.0  
 tolerance degree :  $\pm$  4.0

control lever  
 position degree : 21.0  
 tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 150  
  
 CRT mm min. :  $>$  8.00

#### Testing:

Rated speed rpm : 285  
 rack travel mm : 5.20  
 Tolerance mm :  $\pm$  0.10  
  
 rack travel mm :  $<$  2.00  
 Rated speed rpm : 390  
 Tolerance 1/min :  $\pm$  20

---

#### TORQUE CONTROL

Rated speed rpm : 700  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1000  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

NO3

Rated speed rpm : 500  
 Pressure hPa : 1500  
 rack travel mm : 12.30  
 Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
 Pressure hPa : -  
 rack travel mm : 10.40  
 Tolerance mm :  $\pm$  0.20

#### MEASUREMENT

Rated speed rpm : 500  
  
 Pressure hPa : 275  
 rack travel mm : 10.90  
 Tolerance mm :  $\pm$  0.15

Pressure hPa : 425  
 rack travel mm : 12.10  
 tolerance mm :  $\pm$  0.05

---

#### Start interlock

Rated speed rpm :  $>$  100  
 Rated speed rpm :  $<$  170

Check  
 speed 1/min :  $>$  80  
 Check  
 speed 1/min :  $<$  190

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
 hPa : 1500  
 Rated speed rpm : 1000  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 214.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  4.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  6.0

Aneroid pressure  
 hPa : -  
 Rated speed rpm : 500  
 Del. quantity  
 cm<sup>3</sup>/1000 strokes : 210.0  
 Tolerance  
 cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
 Check tolerance  
 cm<sup>3</sup>/1000S. :  $\pm$  4.0



---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 250.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  20.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  25.0

---

#### LOW IDLE

Rated speed rpm : 285  
Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 30.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  3.0  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  6.0  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.07.98  
Test oil : ISO 4113  
  
Combination No. : 0 400 863 023  
  
Injection pump  
Pump designation : PES3A95D410/3RS2905  
EP type number : 0 410 893 996

Governor  
Governor design. : RSV325...1250A5C861L  
Governor no. : 0 420 232 624

Cust. part No. : 0423 1731 KY

Customer-spec. information  
Customer : KHD-DMI  
Motor : F3L912/913\_NEU  
Power KW : 44.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holder  
assembly : 0 681 343 009

Opening pressure  
bar : 173.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.00  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 3- 2

Phasing : 0-120-240  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## BASIC SETTING

Rated speed rpm : 1250

Rack travel in mm : 11.35  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 76.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spread

Tolerance  
cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

Rated speed rpm : 325

Rack travel in mm : 8.50

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm3/1000 strokes : 11.5

Tolerance  
cm3/1000 strokes :  $\pm$  2.0

Check tolerance  
cm3/1000S. :  $\pm$  4.5

Spread  
Tolerance

cm3/1000 strokes : 5.5

Check tolerance  
cm3/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

#### GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.00

#### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1250  
Aneroid pressure  
hPa : -

Del. quantity  
cm3/1000 strokes : 76.0

Tolerance  
cm3/1000 strokes :  $\pm$  1.0

Check tolerance  
cm3/1000S. :  $\pm$  3.0

Spread  
Tolerance

cm3/1000 strokes : 3.5

Check tolerance  
cm3/1000S. : 8.0

#### CONTROL LEVER

control lever  
position degree : 102.0  
tolerance degree :  $\pm$  4.0

RATED SPEED  
rack travel mm : 10.35  
Rated speed rpm : 1295  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 1339  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1510

rack travel mm : 4.00  
Rated speed rpm : 1360  
Tolerance 1/min :  $\pm$  15

#### LOW IDLE

control lever  
position degree : 69.0  
tolerance degree :  $\pm$  4.0

#### Setting point w/out bumper spring

Rated speed rpm : 325  
rack travel mm : 8.00  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

#### Testing:

Rated speed rpm : 325  
rack travel mm : 8.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 473  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1250  
rack travel mm : 11.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 125.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  7.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  10.0

---

#### LOW IDLE

Rated speed rpm : 325  
Rack travel in mm : 8.50  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 11.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 28.07.98

Test oil : ISO 4113

Combination No. : 0 400 876 434

## Injection pump

Pump designation : PES6A95D410RS2864

EF type number : 0 410 896 888

## Governor

Governor design. : RSV400...1050A8C2263

: -11L

Governor no. : 0 420 232 635

Cust. part No. : 87 801 607

## Customer-spec. information

Customer : NH

Motor : P 396

Power KW : 176.0

## TEST BENCH REQUIREMENTS

Inlet line : 1.3

Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

Test nozzle holde  
assembly

: 1 688 901 101

Opening pressure  
bar

: 208.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

N08

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.60

Tolerance mm : ± 0.05

Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Start of delivery mark

Tolerance : ± 0.50

Check

tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.75

Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 450

Rack travel in mm : 5.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 3  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm : ± 0.20

governor spring  
pre-tension  
click setting x : 4.50

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700

Aneroid pressure  
hPa : 1200

Del. quantity  
cm<sup>3</sup>/1000 strokes : 137.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever  
position degree : 98.0  
tolerance degree : ± 4.0

##### ASSEMBLY GOVERNOR SETTING

Rated speed rpm : 1095  
rack travel mm : 10.60

Rated speed rpm : 1165  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1096  
rack travel mm : 10.60

Rated speed rpm : 1166  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1097  
rack travel mm : 10.60

Rated speed rpm : 1167  
Tolerance 1/min : ± 5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm : ± 0.55  
Rated speed rpm : 1300

Rated speed rpm : 1098  
rack travel mm : 10.60

Rated speed rpm : 1168  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1099  
rack travel mm : 10.60

Rated speed rpm : 1169  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

Rated speed rpm : 1100  
rack travel mm : 10.60

Rated speed rpm : 1170  
Tolerance 1/min :  $\pm$  5  
rack travel mm : 4.00

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 1300

---

#### LOW IDLE

control lever  
position degree : 78.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 450  
rack travel mm : 5.00  
Tolerance mm :  $\pm$  0.10

Testing:

Rated speed rpm : 450  
rack travel mm : 5.50  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 585  
Tolerance 1/min :  $\pm$  30

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.75  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 1050  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 1050  
rack travel mm : 12.00  
Tolerance mm :  $\pm$  0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.80  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.05

#### MEASUREMENT

Rated speed rpm : 500

Pressure hPa : 700  
rack travel mm : 12.85  
Tolerance mm :  $\pm$  0.05

Pressure hPa : 600  
rack travel mm : 11.90  
Tolerance mm :  $\pm$  0.20

---

#### FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 98.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. : + 3.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm : + 0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 164.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 8.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 11.0

---

#### LOW IDLE

Rated speed rpm : 450  
Rack travel in mm : 5.50  
Tolerance mm : + 0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 12.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 4.5  
Spreed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 25.07.98

Test oil : ISO 4113

Combination No. : 0 400 876 437

## Injection pump

Pump designation : PES6A95D32ORS2806

EP type number : 0 410 896 898

## Governor

Governor design. : RSV375...1125A0C900R

Governor no. : 0 420 233 353

Cust. part No. : 8368 54720

## Customer-spec. information

Customer : SISU

Motor : 620D

Power KW : 88.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

## Test oil inlet

temp. °C : 40

Tolerance °C : ± 2.0

Overflow valve : 1 419 992 198

Inlet press. bar : 1.5

## Test nozzle holder assembly

: 0 681 343 009

## Opening pressure bar

: 173.5

Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0

x length mm : 600

## REMARKS

## (A) INJECTION PUMP SETTING VALUES

Set equal delivery quant.

per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0

Tolerance bar : ± 1.0

Prestroke mm : 2.55

Tolerance mm : ± 0.05

## Check

tolerance mm : ± 0.10

Rack travel in mm : 10.50

Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240

: -300

Tolerance : ± 0.50

## Check

tolerance °NW : ± 0.75

## Beginning of delivery difference

Difference ° CS : 5.00

## BASIC SETTING

Rated speed rpm : 1100

Rack travel in mm : 9.05

Tolerance mm : ± 0.05

## Del. quantity

cm<sup>3</sup>/1000 strokes : 74.0

## Tolerance

cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

Rated speed rpm : 375

Rack travel in mm : 4.00

Tolerance mm :  $\pm$  0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5

Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE POSITION

control lever

position degree : - 3

Rated speed rpm : 800

Rack travel in mm : 0.50

Tolerance mm :  $\pm$  0.20

governor spring

pre-tension

click setting x : 4.00

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1100

Aneroid pressure

hPa : -

Del. quantity  
cm<sup>3</sup>/1000 strokes : 74.0

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

Spreed

Tolerance  
cm<sup>3</sup>/1000 strokes : 3.5

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

##### CONTROL LEVER

control lever

position degree : 90.0

tolerance degree :  $\pm$  4.0

##### RATED SPEED

rack travel mm : 8.00

Rated speed rpm : 1145

Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00

Rated speed rpm : 1195

Tolerance 1/min :  $\pm$  15

rack travel mm : 0.85

Tolerance mm :  $\pm$  0.55

Rated speed rpm : 1350

rack travel mm : 4.00

Rated speed rpm : 1200

Tolerance 1/min :  $\pm$  15

##### LOW IDLE

control lever

position degree : 71.0

tolerance degree :  $\pm$  4.0

##### Setting point w/out bumper spring

Rated speed rpm : 375

rack travel mm : 3.50

Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT mm min. :  $>$  19.50

##### Testing:

Rated speed rpm : 375

rack travel mm : 4.00

Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00

Rated speed rpm : 455  
Tolerance 1/min :  $\pm$  30

---

TORQUE CONTROL

Rated speed rpm : 1100  
rack travel mm : 9.05  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
rack travel mm : 9.35  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 980  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.10

---

FUEL DELIVERY CHARACTERISTICS

---

Aneroid pressure

hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 58.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.25  
Tolerance mm :  $\pm$  0.75  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 195.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  8.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  11.0

---

LOW IDLE

Rated speed rpm : 375  
Rack travel in mm : 4.00  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 14.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0

Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.5  
Check tolerance  
cm<sup>3</sup>/1000S. : 9.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 02.07.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 097

Injection pump  
Pump designation : PES6A100D320/3RS3517  
EP type number : F 002 A10 036

Governor  
Governor design. : RSV550...750A7C983R  
Governor no. : F 002 A2C 027

Cust. part No. :

Customer-spec. information  
Customer : TATA  
Motor : 68T  
Power KW : 86.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 9 451 037 430

Inlet press. bar : 2.0

Test nozzle holder  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

M15

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 3.10  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 9.00  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 730

Rack travel in mm : 12.20  
Tolerance mm : ± 0.05

---

Rack travel in mm : 4.95  
Tolerance mm :  $\pm$  0.10

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever  
position degree : FREE  
Rated speed rpm : 800

Rack travel in mm : 0.50  
Tolerance mm :  $\pm$  0.20

governor spring  
pre-tension  
click setting x : 3.75

---

CONTROL LEVER

control lever  
position degree : 83.0  
tolerance degree :  $\pm$  4.0

RATED SPEED

rack travel mm : 11.20  
Rated speed rpm : 750  
Tolerance 1/min :  $\pm$  5

rack travel mm : 4.00  
Rated speed rpm : 780  
Tolerance 1/min :  $\pm$  5

rack travel mm : 0.85  
Tolerance mm :  $\pm$  0.55  
Rated speed rpm : 850

rack travel mm : 4.00  
Rated speed rpm : 780  
Tolerance 1/min :  $\pm$  15

---

LOW IDLE

control lever  
position degree : 77.0

N16

tolerance degree :  $\pm$  4.0

Control lever difference  
Grad : 11.0  
tolerance degree :  $\pm$  6.0

Setting point w/out bumper spring

Rated speed rpm : 550  
rack travel mm : 3.95  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 100

CRT min min. :  $>$  19.00

Testing:

Rated speed rpm : 550  
rack travel mm : 4.95  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 575  
Tolerance 1/min :  $\pm$  30

---

TORQUE CONTROL

Rated speed rpm : 730  
rack travel mm : 12.20  
Tolerance mm :  $\pm$  0.05

---

STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 13.40  
Tolerance mm :  $\pm$  0.50

---

LOW IDLE

Rack travel in mm : 4.95  
Tolerance mm :  $\pm$  0.10

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.07.98  
Test oil : ISO 4113

Combination No. : F 002 A0Z 108

Injection pump  
Pump designation : PES6A95D120RS2916  
EP type number : F 002 A10 010

Governor  
Governor design. : RSV425...1000ADC981R  
Governor no. : F 002 A20 256

Cust. part No. : 328 4546

Customer-spec. information  
Customer : CUMMINS  
Motor : 6BT  
Power KW : 102.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 093

Inlet press. bar : 2.0  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 014

Outside diameter : 6.0

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 17.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.85  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery blocking

°NW after s.o.d. : 9.50  
Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.29

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.30  
Tolerance mm : ± 0.05

<hr/>	
Del. quantity	
cm3/1000 strokes :	98.2
<hr/>	
Tolerance	
cm3/1000 strokes :	+ 1.0
<hr/>	
Check tolerance	
cm3/1000S. :	+ 3.0
<hr/>	
Spreed	
<hr/>	
Tolerance	
cm3/1000 strokes :	4.0
<hr/>	
Check tolerance	
cm3/1000S. :	6.0
<hr/>	

Rated speed rpm :	425
<hr/>	
Rack travel in mm :	5.05
Tolerance mm :	+ 0.10
Del. quantity	
cm3/1000 strokes :	18.5
Tolerance	
cm3/1000 strokes :	+ 2.0
Check tolerance	
cm3/1000S. :	+ 4.5
Spreed	
Tolerance	
cm3/1000 strokes :	6.0
Check tolerance	
cm3/1000S. :	8.0

(B) SETTING OF INJECTION PUMP  
WITH GOVERNOR

---

GUIDE SLEEVE POSITION

control lever	
position degree :	FREE
Rated speed rpm :	800
<hr/>	
Rack travel in mm :	0.50
Tolerance mm :	+ 0.20
<hr/>	
governor spring	
pre-tension	
click setting x :	2.50

---

FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm :	1000
-------------------	------

N18

Aneroid pressure	
hPa :	900
<hr/>	
Del. quantity	
cm3/1000 strokes :	98.2
Tolerance	
cm3/1000 strokes :	+ 1.0
Check tolerance	
cm3/1000S. :	+ 3.0
Spreed	
Tolerance	
cm3/1000 strokes :	4.0
Check tolerance	
cm3/1000S. :	6.0

---

CONTROL LEVER

control lever	
position degree :	95.0
tolerance degree :	+ 4.0

RATED SPEED	
rack travel mm :	10.30
Rated speed rpm :	1040
Tolerance 1/min :	+ 5

rack travel mm :	4.50
Rated speed rpm :	1095
Tolerance 1/min :	+ 5

rack travel mm :	0.85
Tolerance mm :	+ 0.55
Rated speed rpm :	1225

rack travel mm :	4.50
Rated speed rpm :	1105
Tolerance 1/min :	+ 15

---

LOW IDLE

control lever	
position degree :	78.0
tolerance degree :	+ 4.0

Control lever difference	
Grad :	17.0
tolerance degree :	+ 6.0

Setting point w/out bumper spring

Rated speed rpm :	425
rack travel mm :	4.05
Tolerance mm :	+ 0.10

Rated speed rpm :	100
-------------------	-----

CRT mm min. : > 19.00

#### Testing:

Rated speed rpm : 425  
rack travel mm : 5.05  
Tolerance mm :  $\pm$  0.10

rack travel mm : 2.00  
Rated speed rpm : 600  
Tolerance 1/min :  $\pm$  30

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.30  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 750  
rack travel mm : 11.80  
Tolerance mm :  $\pm$  0.20

#### ANEROID/ALTITUDE COMPENSATOR TEST

##### SETTING

Rated speed rpm : 500  
Pressure hPa : 900

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 11.00  
Tolerance mm :  $\pm$  0.20

##### MEASUREMENT

Rated speed rpm : 500  
Pressure hPa : 700  
rack travel mm : 11.70  
Tolerance mm :  $\pm$  0.20

Pressure hPa : 500  
rack travel mm : 11.20  
Tolerance mm :  $\pm$  0.20

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 900  
Rated speed rpm : 750  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 106.2

Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

Aneroid pressure  
hPa : -  
Rated speed rpm : 500  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 91.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  3.0

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 20.50  
Tolerance mm :  $\pm$  0.50  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 121.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  10.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  15.0

#### LOW IDLE

Rated speed rpm : 425  
Rack travel in mm : 5.05  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 18.5  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.5  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 6.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

End of test specification sheet



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 29.07.98  
Test oil : ISO 4113

Combination No. : 0 401 846 990

Injection pump  
Pump designation : FE6P120A32URS3118  
EP type number : 0 411 826 726

Governor  
Governor design. : RQV250...1100PA920  
: -9  
Governor no. : 0 421 814 105

Cust. part No. : 425663-P0? (P03)

Customer-spec. information  
Customer : VOLVO-TRUCK  
Motor : THD 102 KD  
Power KW : 250.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.1

Vibration  
damper  
(RoBo diaphragm) : 4.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 2 417 413 046

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holder  
assembly : 1 688 901 019

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

N20

Test lines : 1 680 750 075

Outside diameter : 8.0

x inside diameter : 3.0  
x length mm : 1000

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 2.65  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 10.50  
Tolerance mm : ± 1.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.70

## BASIC SETTING

Rated speed rpm : 700

Rack travel in mm : 13.25  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 223.0

Tolerance  
cm3/1000 strokes : + 1.0

Check tolerance  
cm3/1000S. : + 4.0

#### Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 9.0

Rated speed rpm : 250

Rack travel in mm : 5.20  
Tolerance mm : + 0.10

Del. quantity  
cm3/1000 strokes : 32.0

Tolerance  
cm3/1000 strokes : + 2.5

Check tolerance  
cm3/1000S. : + 5.0

#### Spread

Tolerance  
cm3/1000 strokes : 5.0

Check tolerance  
cm3/1000S. : 7.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1146  
guide sleeve  
travel mm : 7.80  
Tolerance mm : + 0.25

Rated speed rpm : 250  
guide sleeve  
travel mm : 1.19  
Tolerance mm : + 0.25

Rated speed rpm : 1081  
guide sleeve  
travel mm : 6.82  
Tolerance mm : + 0.25

Rated speed rpm : 387  
guide sleeve  
travel mm : 2.96  
Tolerance mm : + 0.25

Rated speed rpm : 437

guide sleeve  
travel mm : 3.71  
Tolerance mm : + 0.25

Rated speed rpm : 520  
guide sleeve  
travel mm : 4.67  
Tolerance mm : + 0.25

Rated speed rpm : 1370  
guide sleeve  
travel mm : 11.50  
Tolerance mm : + 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : - 1  
Rated speed rpm : 1185

Rack travel in mm : 16.50  
Tolerance mm : + 1.30

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 700  
Aneroid pressure  
hPa : 1200  
Del. quantity  
cm3/1000 strokes : 223.0  
Tolerance  
cm3/1000 strokes : + 1.0  
Check tolerance  
cm3/1000S. : + 4.0  
Spread  
Tolerance  
cm3/1000 strokes : 5.0  
Check tolerance  
cm3/1000S. : 9.0

##### CONTROL LEVER

control lever  
position degree : 62.0  
tolerance degree : + 4.0

control lever  
position degree : 117.0  
tolerance degree : + 4.0

##### RATED SPEED

rack travel mm : 12.25  
Rated speed rpm : 1135  
Tolerance 1/min : + 5

rack travel mm : 4.00  
Rated speed rpm : 1225  
Tolerance 1/min :  $\pm$  15

rack travel mm : 0.50  
Tolerance mm :  $\pm$  0.50  
Rated speed rpm : 1350

---

#### LOW IDLE

control lever  
position degree : 64.0  
tolerance degree :  $\pm$  4.0

control lever  
position degree : 9.0  
tolerance degree :  $\pm$  4.0

Setting point w/out bumper spring

Rated speed rpm : 150

CRT min min. :  $>$  6.20

#### Testing:

Rated speed rpm : 250  
rack travel mm : 5.20  
Tolerance mm :  $\pm$  0.10

Rated speed rpm : 310

---

#### TORQUE CONTROL

Rated speed rpm : 700  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 500  
Pressure hPa : 1200  
rack travel mm : 13.25  
Tolerance mm :  $\pm$  0.05

Rated speed rpm : 500  
Pressure hPa : -  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.15

#### MEASUREMENT

N22

Rated speed rpm : 500

Pressure hPa : 850  
rack travel mm : 3.70  
Tolerance mm :  $\pm$  0.15

Pressure hPa : 160  
rack travel mm : 0.25  
Tolerance mm :  $\pm$  0.05

---

#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : -  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 134.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  1.0  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  4.0

---

#### STARTING FUEL DELIVERY

Rated speed rpm : 100  
rack travel mm : 9.00  
Tolerance mm :  $\pm$  0.15

---

#### LOW IDLE

Rated speed rpm : 250

Rack travel in mm : 5.20  
Tolerance mm :  $\pm$  0.10  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 32.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000S. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 5.0  
Check tolerance  
cm<sup>3</sup>/1000S. : 7.0

---

End of test specification sheet

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Refer to Service Info for test and adjustment instructions.  
See microcard(s) W400/...

Edition : 27.07.98  
Test oil : ISO 4113

Combination No. : 0 402 046 861

Injection pump  
Pump designation : PE6P11GA32CRS3329  
EP type number : 0 412 016 743

Governor  
Governor design. : RQ325/1300PA1150  
Governor no. : 0 421 801 716

Cust. part No. : 1284420/6

Customer-spec. information  
Customer : DAF  
Motor : NS156M  
Power Kw : 156.0

## TEST BENCH REQUIREMENTS

Inlet line : 3.2

Test oil inlet  
temp. °C : 40  
Tolerance °C : ± 2.0

Overflow valve : 1 417 413 025

Inlet press. bar : 1.5  
Tolerance bar : ± 0.1

Test nozzle holde  
assembly : 1 688 901 101

Opening pressure  
bar : 208.5  
Tolerance bar : ± 1.5

Test lines : 1 680 750 008

Outside diameter : 6.0

N24

x inside diameter : 2.0  
x length mm : 600

## REMARKS

(A) INJECTION PUMP SETTING VALUES  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure bar : 26.0  
Tolerance bar : ± 1.0

Prestroke mm : 5.25  
Tolerance mm : ± 0.05  
Check  
tolerance mm : ± 0.10

Rack travel in mm : 20.50  
Tolerance mm : ± 0.50

Firing order : 1- 5- 3- 6- 2-  
: 4

Phasing : 0-60-120-180-240  
: -300  
Tolerance : ± 0.50  
Check  
tolerance °NW : ± 0.75

## Start of delivery mark

Tolerance : ± 0.10  
Check  
tolerance °NW : ± 0.75

Barrel no. : 1

## BASIC SETTING

Rated speed rpm : 1000

Rack travel in mm : 11.85  
Tolerance mm : ± 0.05

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

Rated speed rpm : 325

Rack travel in mm : 4.50  
Tolerance mm : ± 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 2.5

Check tolerance  
cm<sup>3</sup>/1000S. : ± 5.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0

Check tolerance  
cm<sup>3</sup>/1000S. : 8.0

#### (B) SETTING OF INJECTION PUMP WITH GOVERNOR

##### GUIDE SLEEVE TRAVEL

Rated speed rpm : 1351  
guide sleeve

travel mm : 6.37  
Tolerance mm : ± 0.10

Rated speed rpm : 325  
guide sleeve

travel mm : 1.99  
Tolerance mm : ± 0.10

Rated speed rpm : 1300  
guide sleeve

travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 427  
guide sleeve

travel mm : 3.54

Tolerance mm : ± 0.10

Rated speed rpm : 590  
guide sleeve

travel mm : 6.00  
Tolerance mm : ± 0.10

Rated speed rpm : 1570  
guide sleeve

travel mm : 11.50  
Tolerance mm : ± 0.50

##### GUIDE SLEEVE POSITION

control lever  
position degree : 109

Rated speed rpm : 650

Rack travel in mm : 20.00  
Tolerance mm : ± 0.80

##### FULL LOAD DELIVERY AT FULL LOAD STOP

Rated speed rpm : 1000  
Aneroid pressure

hPa : 1000

Del. quantity  
cm<sup>3</sup>/1000 strokes : 144.0

Tolerance  
cm<sup>3</sup>/1000 strokes : ± 1.0

Check tolerance  
cm<sup>3</sup>/1000S. : ± 4.0

#### Speed

Tolerance  
cm<sup>3</sup>/1000 strokes : 8.0

Check tolerance  
cm<sup>3</sup>/1000S. : 12.0

##### CONTROL LEVER

control lever  
position degree : 93.0

tolerance degree : ± 4.0

##### RATED SPEED

rack travel mm : 10.85

Rated speed rpm : 1345

Tolerance 1/min : ± 5

Check  
speed 1/min : ± 10

rack travel mm : 4.00

Rated speed rpm : 1450

Tolerance 1/min : ± 15

Check  
speed 1/min : + 20  
  
rack travel mm : 0.50  
Tolerance mm : + 0.50  
Rated speed rpm : 1600

---

#### LOW IDLE

control lever  
position degree : 72.0  
tolerance degree : + 4.0

Setting point w/out bumper spring

Rated speed rpm : 225  
  
CRT mm min. : > 5.90

#### Testing:

Rated speed rpm : 325  
rack travel mm : 4.50  
Tolerance mm : + 0.10

rack travel mm : 2.00  
Rated speed rpm : 415

---

#### TORQUE CONTROL

Rated speed rpm : 1000  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 700  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 1300  
rack travel mm : 11.85  
Tolerance mm : + 0.05

Rated speed rpm : 1000  
rack travel mm : 12.85  
Tolerance mm : + 0.10

---

#### ANEROID/ALTITUDE COMPENSATOR TEST

#### SETTING

Rated speed rpm : 600  
Pressure hPa : 1000  
rack travel mm : 11.85

N26

Tolerance mm : + 0.05  
  
Rated speed rpm : 600  
Pressure hPa : -  
rack travel mm : 7.35  
Tolerance mm : + 0.20

#### MEASUREMENT

Rated speed rpm : 600  
  
Pressure hPa : 370  
rack travel mm : 10.75  
Tolerance mm : + 0.05

Pressure hPa : 200  
rack travel mm : 8.55  
Tolerance mm : + 0.10

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#### FUEL DELIVERY CHARACTERISTICS

Aneroid pressure  
hPa : 1000  
Rated speed rpm : 700  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 145.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 2.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 5.0

rack travel mm : 11.85  
Tolerance mm : + 0.05

Aneroid pressure  
hPa : -  
Rated speed rpm : 1000  
Del. quantity  
cm<sup>3</sup>/1000 strokes : 94.0  
Tolerance  
cm<sup>3</sup>/1000 strokes : + 1.0  
Check tolerance  
cm<sup>3</sup>/1000S. : + 3.5

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#### LOW IDLE

Rated speed rpm : 325  
  
Rack travel in mm : 4.50  
Tolerance mm : + 0.10

Del. quantity  
cm<sup>3</sup>/1000 strokes : 26.0  
Tolerance  
cm<sup>3</sup>/1000 strokes :  $\pm$  2.5  
Check tolerance  
cm<sup>3</sup>/1000s. :  $\pm$  5.0  
Speed  
Tolerance  
cm<sup>3</sup>/1000 strokes : 4.0  
Check tolerance  
cm<sup>3</sup>/1000s. : 8.0

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End of test specification sheet